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ARIZONA MEDICINE

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Original ARTICLES

PEPTIC ULCER AND HYPERTENSION*

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Whipple, Arizona

THE study of the relationship of peptic ulcer and hypertension has been almost neglected in medical investigation. A review of the medical literature does not offer any clear-cut evaluation of this interesting problem. Only rare and casual comments on this subject have been encountered. Meyer A. Zeligs(1) ascribes to the peptic ulcer patient low-normal blood pressure as one of his characteristic features. S. C. Robinson and M. Brucer(2) found the systolic and diastolic blood pressures of 250 men with gastroduodenal ulcers to be lower than in an unselected group of 7478 men. On the other hand R. W. Wilkins(3) states casually that hypertension and peptic ulcer are common diseases and frequently occur together. Schenken(4) stated that 19 out of 81 patients who died of gastroduodenal hemorrhage, and on whom postmortems were done, had concomitant hypertension. But he made the diagnosis of hypertension in two patients on the basis of cardiac hypertrophy only, and in twelve patients on the basis of a diastolic pressure of 90 mm. Hg. and cardiac hypertrophy. It is felt that those patients had no essential hypertension but arteriosclerotic heart disease. One had a blood pressure of 130/76 with severe gastric hemorrhage, and the remaining four patients had a diastolic pressure of 100 or more. G. Watkinson(5) in a postmortem survey into the relation of peptic ulcer with other medical

disorders did not mention hypertension among a list of other associated conditions found in 364 peptic ulcer cases.

These facts, and the observation over a period of ten years that among a group of about 100 peptic ulcer patients in private practice only one hypertensive patient was found to develop duodenal ulcer, prompted a thorough investigation of the simultaneous occurrence of peptic ulcer and hypertension.

Method of Study: A search of the hospital records for the last four years disclosed 125 definite peptic ulcer patients. All of the studied gastric and 95% of the duodenal ulcer cases exhibited typical x-ray changes in association with characteristic clinical and laboratory findings. Of the 5% of duodenal ulcer patients who did not yield positive radiological ulcer signs during their hospitalization, some were found to have done so in the past, and in the remainder all the other clinical and laboratory criteria for peptic ulcer were sound. Doubtful cases were rejected.

Also, a review of 93 records of patients treated for essential hypertension during these four years made sure that no ulcer patient was hidden among them.

The peptic ulcer patients were divided into five age groups. This was done in order to comply with the classification of A. M. Master(6) and his associates of hypertension at different age groups. The mean systolic and diastolic pressures in each age group of peptic

* From the Department of Medicine, Veterans' Administration Center, Whipple, Arizona. Read before the VA State Inter-hospital Meeting at VA Hospital, Phoenix, Arizona.

ulcer study cases were presented, as were the number of hypertensives among the ulcer patients.

deficiency, hyperparathyroidism, protein deficiency, decompensated heart disease and chiefly cor pulmonale with congestive failure, vom-

Age	Number of patients	Mean systolic pressure	Mean diastolic pressure	Number of ulcer patients with hypertension	Hypertension in percentages	Hypertension in percentages in normal population *
IN ULCER GROUP STUDIED						
20-40	36	114	75	None	None	
40-49	26	120	76	None	None	10.3
50-59	29	130	77	None	None	20.5
60-69	28	132	78	2	7.0	26.6
70-79	6	138	80	None	None	32.6

* Master, A. M. Marks, H.H. and Dack, S., 1953 J. Amer. Med. Ass. 121, 1251.

Hypertension in percentages in normal male population

Hypertension in percentages in normal female population 13.3, 24.0, 29.2, 34.0

Results: As seen from the table, there were only two ulcer patients who also were hypertensives. According to the figures of Master and his associates about 19% of individuals in the age group 20 to 79 have essential hypertension. That should have yielded about 23 patients with essential hypertension in the 125 ulcer patients, but only two were found.

One can notice also that in the oldest age group, 70 to 79, where the incidence of hypertension is the greatest, there is the least incidence of peptic ulcer; and among the age group of 20 to 40, where the incidence of hypertension is the lowest, there is the greatest incidence of peptic ulcer.

In addition to the above it stands out prominently that the mean systolic and diastolic pressures in each age group of the ulcer patients are lower than in the prevalent accepted mean pressures in the corresponding age groups of the normal population.

Discussion: The chief interest of this study is centered around primary conditions: Primary or essential hypertension and "primary" peptic ulcer. For it is they that require more search for the as yet unknown mechanisms of development and initiation of the disease processes.

Primary peptic ulcer is to be distinguished from secondary peptic ulcer, like primary hypertension is distinguished from secondary hypertension. Just like the removal of the cause leading to secondary hypertension would make the hypertension vanish, or like the abolition of coarctation of the aorta would erase the hypertension brought on by it, so would the surgical cure of diaphragmatic hernia eliminate the ulcer created because of it.

Many gastroduodenal ulcers have been proven to be secondary to polycythemia, burns, corrosive poisons, infectious agents, Vitamin C

deficiency, hyperparathyroidism, protein deficiency, decompensated heart disease and chiefly cor pulmonale with congestive failure, vomiting and trauma. The formation of gastric ulcers following phytobezoar and trichobezoar, or of esophageal ulcers after being acted upon by a stomach tube, are well known. Peptic ulcers secondary to protein deficiency among the natives of southern India responded to high protein diet; and ulcers secondary to starvation in certain parts of Europe and Asia during the last world wars were cured by a supply of regular foods. Vitamin A deficiency was shown to cause gastroduodenal ulceration due to lack of anti-ulcer mucus formation. All these ulcer cases are characterized by a recognizable etiologic agent, and their prevention and cure lies in measures against the primary cause. As the etiologic agents differ, so manifold are the therapeutic regimes. The same applies to secondary hypertension where for example surgical intervention for pheochromocytoma will ameliorate hypertension, and so will proper antibiotics applied in time prevent hypertension ultimately caused by pyelonephritis.

The search for coexistence of peptic ulcer and secondary hypertension would be of minor importance. The ulcerations of the gastrointestinal tract in uremia are well accepted as secondary ulcerations. With the exception of periarteritis nodosa, polycythemia is probably the only disease where both hypertension and ulcers develop secondarily: Secondary hypertension due to hypervolemia, and secondary ulcers apparently caused by thrombosis of minute gastric or duodenal vessels.

There is no need to dwell any more upon the subject of these two secondary abnormalities. Suffice it to say that it was also discussed in order to stress the need for elucidation of the relationship of their "parent diseases": Primary or essential hypertension and primary peptic ulcer.

The 125 peptic ulcer and the 93 hypertensive

hospital cases represented primary conditions. As mentioned already, no peptic ulcer was discovered among the 93 hypertensives, and only two of the 125 primary ulcer patients developed hypertension. These means less than 2% of peptic ulcer concomitant with hypertension in the hospital group, and if we add the 100 ulcer cases from private practice where only one hypertensive revealed an ulcer it would mean only three cases out of 225, or less than 1½%.

The significance of this revelation lies not so much in the fact that it can be utilized as an aid in differential diagnosis, but more in the fact that it might serve as a guide toward the goal of clarification of the etiology of both primary maladies. The common denominator in both conditions is their relationship to the autonomous nervous system. While essential hypertension is tied up with the sympathetic system, primary peptic ulcer is associated with the parasympathetic or vagus nerve. Vagus nerve section is an effective treatment for primary peptic ulcer, and so is sympathectomy for primary hypertension. Following sympathectomies peptic ulcers and hemorrhages have been reported to appear.

Druckerman(7) and his co-workers have recently reported no ulcer recurrences in a group of duodenal ulcer patients in which vagotomy was performed with gastric resection. Walters and Chance(8) prefer to perform gastric resection with vagotomy as recommended by Johnson and Orr in duodenal ulcer patients who have unusually high concentrations of gastric acids or hereditary characteristics that indicate that they might be candidates for recurring ulceration.

B. Steinman(9), who reported a case of bleeding peptic ulcer following sympathectomy for essential hypertension, cited Mason and Pollard who found among 1498 patients that underwent bilateral sympathectomy for severe hypertension, 13 with complications due to peptic ulcers. Only 8 of those patients had gastroduodenal ulcers prior to the sympathectomy, four developed ulcers following sympathectomies, and the exact time of ulcer development in one patient could not be established with certainty. B. Steinman emphasizes these findings to point to the eminent role the parasympathetic system is playing in the genesis of peptic ulcer.

The psychic or nervous derangements which

originate in the higher cortical centers stimulate either the parasympathetic or the sympathetic pathways of the autonomous nervous system and corresponding disturbances of normal functions with ultimate organic changes follow.

In primary peptic ulcer the natural chain of events is as follows: Emotional disturbances originate impulses in the cortex which stimulate the middle nuclei of the hypothalamus, travel along the parasympathetic fibres causing liberation of acetylcholine with hypersecretion, hypermotility of the stomach and duodenum, and finally ulcer formation. Locally, in the stomach and duodenum, it is the lesser curvature and the bulb respectively that are more prone to develop ulcers because the vagal effects are most productive there with high acid-pepsin chyme aided by an anatomic fault of less vascularity of those portions.

In primary hypertension the same mode of action ensues: Emotional stimuli originate impulses in the cortex which stimulate the posterior nuclei of the hypothalamus and travel along the sympathetic branches with liberation of adrenalin or rennin (definitely not established) and resulting arteriolar constriction with progressive organic vascular-tree changes.

Franx Alexander(10) maintains that the emotional stimuli are specific and consist of frustrated dependent demands in the peptic ulcer patient and suppressed hostility in the hypertensive. Thus, an implication that specific emotional stimuli stimulate specific pathways of the vegetative nervous system would fit well with his concept.

The finding of the present study that primary hypertension and primary peptic ulcer rarely occur together makes it appear that certain personalities show selective affinity for one malady or the other. Alvarez(11) describes as the ulcer type the keen, alert, sensitive man who is constantly driving himself. He believes that the hereditary factor is very important. It may also be stated in addition that the pattern of reactivity is an inherited trait, and is best manifested clinically in two distinct entities, namely that of primary peptic ulcer and primary hypertension..

As to the few exceptions to this rule, namely the three hypertensives among the 225 peptic ulcer patients, they are the most intriguing cases and should offer a fertile soil for psychosomatic investigation. We doubt whether an active bipartisan neurogenic policy ever exists, or whe-

ther an active concomitant occurrence of both primary diseases is real. Definitely no activity of both diseases at the same time was manifested clinically in those few exceptions encountered in our study. The two hospital patients showed no progressive hypertensive disease during the time of active peptic ulcer disease. Following successful surgery with no gastrointestinal complaints since, there has been progressive cardiovascular disease with increased hypertension in one 63 year old patient. One year prior to surgery his systolic pressure was 172 and the diastolic 104. On September 12, 1953, three years after surgery, his blood pressure reading was 196/120. The 66 year old patient revealed systolic hypertension of 190 and a diastolic pressure of 95, six months before surgery on April 17, 1952. Ten months after surgery his blood pressure has been ranging from 216 to 240 systolic and 108 to 120 diastolic. However, he has not as yet shown hypertensive retinopathy or cardiac enlargement on x-ray studies. The patient from private practice was a 50 year old male who has had essential hypertension for 16 years. He showed marked left ventricular hypertrophy and widening and tortuosity of the aorta and 2nd degree A-V nicking in the eye grounds. He never had albuminuria, glycosuria, congestive failure, coronary episodes or blood dyscrasias. During the last 8 years, while his systolic pressure used to range between 180 and 200 and the diastolic between 115 and 125 mm. Hg., he experienced three episodes of melena lasting for 2 to 3 days each time, with complete recovery following bed rest and conservative therapy. GI series was negative the first time. The second time no x-ray studies were done as he also had epistaxis and the blood pressure was entertained as the cause of his melena. Surprisingly he did show a small crater and defective filling of the duodenal bulb after his third episode of melena. He never experienced even the slightest abdominal pain, epigastric fullness or heartburn, and except for paroxysmal melena he revealed no symptoms at any time compatible with peptic ulcer.

At this point we would like to emphasize that the aforementioned cases of Mason and Pollard showed not only a low simultaneous occurrence of both diseases, but that those exceptional cases which constituted less than 1% of their group demonstrated best activity of one malady when progression of the other

disease was depressed. It was following sympathectomies and suppression of hypertension that eight patients exhibited gastrointestinal hemorrhages and four developed new peptic ulcers.

Besides the psychogenic behavior pattern and the neurogenic reactions that differentiate the primary hypertensive from the primary ulcer personality, there are some other stigmata with which they are mostly and diversely associated. The second tends to be underweight or of normal weight and is seldom overweight and has predominantly a slender, narrow or linear type build. The first tends to be overweight or normal and is seldom underweight, and is the lateral or broad chested type with greater abdomen circumference at the level of the umbilicus. The incidence of primary peptic ulcer is greater in the second, third and fourth decades when the number of asthenic types is more prevalent, and essential hypertension is less frequent. Women offer a greater percentage of sthenic types and in proportion less peptic ulcer cases and more hypertensives. In infants and children where primary hypertension is almost never found, the occurrence of peptic ulcer is not infrequently discovered if only looked for.

In our hospital records no notes were made of abdomen or chest circumference, but of weight and height. The 93 hypertensives revealed sixteen times more obesity than the 125 ulcer patients. The same was noticed in the approximately 100 ulcer patients and many hypertensives in private practice.

It is important to take account of the fact that only 93 hypertensives were treated at the hospital during a period of four years when the number of ulcer patients treated at the same time amounted to 125. The incidence of essential hypertension in the general population is at least three times greater than that of peptic ulcer, but it lags behind in the hospital population. This fact reaffirms a known feature in the mental behavior of the peptic ulcer patient as distinct from one hypertensive. The ulcer patient likes to anchor himself in the hospital. Subconsciously he strives for shelter, security and dependency. Many of them who hide or mask this subconscious dependent desire by overcompensation with independent, energetic and aggressive acts break down as the conflict increases. They then find relief in the hospital which offers the best place for

attention, care and dependency. The patient afflicted with essential hypertension, on the other hand, exhibits an opposite pattern in his mental behavior which explains the fact of lesser numbers of hospital patients among this group.

The neurogenic origin of peptic ulcer was postulated by Comparetti as early as 1790; and it was Carl Rokitsky in 1841 and Schiff(12) in 1845 who blamed overstimulation of the vagus nerve for perforating and bleeding ulcers. Cushing (13), about 100 years later, pointed to the hypothalamus whose irritation might cause alterations in gastric motility, secretion and circulation leading to ulceration. But their conceptions had to give way to the simpler ideas of Virchow and Aschoff(14). The minds of the leading clinicians of that time were more impressed by Aschoff's "Magenstrasse" and Virchow's cellular pathology. The "local" changes in the gastrointestinal tract caused the higher controlling forces to be ignored or forgotten.

Our suggestion to classify peptic ulcer into primary and secondary entities like primary and secondary hypertension should not be criticized solely on the basis of response of ulcers to vagotomy, as there are many pitfalls to this type of surgery. It is hard to cut all the vagi fibres, and then nausea, diarrhea and other disturbances might ensue after this type of operative procedure, as the vagus fulfills other important functions the elimination of which leads to new handicaps. It is rather the complete understanding of all the factors involved in the two disease processes as presented in this paper that should provoke sound reasoning and thoughtful enlightening of this interesting problem.

Summary: One hundred twenty-five hospital records of ulcer patients were reviewed for the concomitant incidence of essential hypertension, and only two were found to have had both

diseases coexisting. The addition of 100 cases of peptic ulcers from private practice with the presence of only one hypertensive developing peptic ulcer makes the coincidence of both maladies less than 1½%.

The presence of "secondary" peptic ulcer is stressed and an analogy is made with secondary hypertension.

The common denominator in both primary conditions and their relationship to the autonomous nervous system is discussed.

Signs of progressive cardiovascular hypertensive disease set in only after cure from the ulcer in the two exceptional hospital patients. The hypertensive patient in private practice had three episodes of melena and never any other ulcer symptoms.

A suggestion is offered to classify peptic ulcer like hypertension into primary peptic ulcer and secondary peptic ulcer.

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DIAGNOSIS AND TREATMENT OF DISEASES OF THE PANCREAS

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PART III — SURGERY

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SURGERY for diseases of the pancreas has not progressed as rapidly as other abdominal surgery. There have, however, been changes in the surgical treatment of some pancreatic diseases in the past few years. Some diseases of the pancreas are very successfully treated by surgery. The currently used surgical procedures for treatment of certain other diseases of the pancreas are yet to be evaluated.

Surgery for diseases of the pancreas includes many varied procedures, some of which are listed as follows:

- Resections of portions or possibly all of the pancreatic gland,
- Removal of stones from pancreatic ducts can occasionally be done,
- Removal of encapsulated adenomata from the gland substance,
- Marsupialization or drainage of pancreatic cysts or abscesses,
- Transforming a pancreatocutaneous fistula into a pancreatogastric or pancreatojejunal fistula,
- Ridding the biliary tract of pathology,
- Sphincterotomy or sphincteroplasty of the sphincter of Oddi,
- External drainage of the biliary system,
- Bypassing the head of the pancreas with the biliary system,
- Bypassing the head of the pancreas with the pancreatic duct,
- Bypassing the duodenum with a gastroenterostomy or gastric resection,
- Thoracolumbar sympathectomy or splanchnicectomy, and
- Vagotomy.

Some consideration of the anatomy of the pancreas and its anatomical relationships is necessary before the consideration of the diseases of the pancreas and corrective surgery. The pancreas lies retroperitoneally and crosses the body of the second lumbar vertebra, the aorta, the inferior vena cava, the right ovarian or spermatic veins, the vessels to both kidneys, the portal vein, and splenic vein, and the left kidney. Anteriorly the spleen is covered by

parietal peritoneum and the lesser sac separates it from the stomach, but the tail lies in contact with the splenic flexure of the colon. The splenic artery runs along the superior border of the pancreas. The superior mesenteric vessels notch the inferior border of the gland. The head is in intimate contact with the duodenum and the terminal common duct passes through the substance of the head of the pancreas. Rarely pancreatic tissue will completely surround the duodenum, and this arrangement has been known to obstruct the duodenum. The arterial blood supply to the pancreas is quite variable, and damage to the blood supply of the pancreas at the time of gastric resection or other upper abdominal surgery has not infrequently resulted in acute pancreatitis; and the hepatic artery has been unknowingly sacrificed, with fatal results, with resection of the pancreas. There are usually a main pancreatic duct and a secondary pancreatic duct, the ducts of Wirsung and Santorini, respectively. In about eight out of ten cases the common bile duct and the main pancreatic duct join before entering the duodenum, forming the ampulla of Vater and the duodenal papilla. The majority of the pancreatic gland is concerned with external secretion. There are from about one hundred thousand to over a million microscopic islands of Langerhans within the gland which are concerned with insulin secretion. These islands are more numerous in the tail of the pancreas. Usually more than 90 per cent of the pancreatic gland must be removed before surgical diabetes is produced. The enzymes of external secretion are proteolytic when activated by bile or other duodenal content. This same external secretion is not proteolytic as it comes directly from the gland. Trypsin in serum increases the coagulability of blood, and this factor may be important in the frequency with which thrombotic phenomena are seen when there is obstruction of the pancreatic duct. Ectopic foci of pancreatic tissue have been found most anywhere within the abdomen but most commonly along the stomach, duodenum, and jejunum. About one out of five Meckel's diverticula contains pancreatic tissue.

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There are certain general principles that apply to surgery of the pancreas. It is very important to use nonabsorbable sutures in suturing in and about pancreatic tissue. One must not leave a distal portion of the gland separated from the head of the gland or even partially separated where there is question of interruption of the ducts. Unusual care must be taken not to traumatize the pancreas during surgery in the upper abdomen, as even the pressure from the end of a retractor may result in the development of acute pancreatitis. Likewise, the blood supply about the pancreas should not be interfered with without accepting risk. Sinuses draining pancreatic juice are frequent following surgery on or about the pancreas, and surgical or traumatic wounds of the pancreas may lead to sinuses which drain pancreatic juice. It is important to drain the area of the pancreas when there is known or suspected injury to the pancreas.

PANCREATIC INJURIES.

The diagnosis of injury to the pancreas is difficult to make unless one bears in mind the possibility in all cases of upper abdominal injury and upper abdominal surgery, especially when delayed symptoms develop. The pancreas should not be overlooked during exploration of the abdomen following a penetrating wound. The nonpenetrating injuries may follow any direct trauma to the upper abdomen. The pancreas is particularly vulnerable as it crosses the body of the second lumbar vertebra. These nonpenetrating injuries are difficult to recognize, but should be suspected in all cases in which severe symptoms develop during recovery from injury. Except in industrial and military medicine, operative injuries are more common than other types of injury to the pancreas. Surgery on the stomach is the most common cause of operative injury to the pancreas, although the pancreas is vulnerable in most upper abdominal surgery and in surgery of the adrenals and left kidney. The surgeon is usually unaware of traumatizing the pancreas at the time of surgery, and too often fails to make the diagnosis when symptoms develop. The symptoms are the same as those of acute pancreatitis. The trauma may actually cause acute pancreatitis, as well as hemorrhage and necrosis. The symptoms consist of shock, upper abdominal pain extending into the back, nausea, vomiting, and hiccoughs. Actual physical findings may be lacking except when shock is present. The diagnosis, however,

can be made if it is suspected by early determination of serum amylase. This test is simple and inexpensive and should be made use of any time there is an unsatisfactory course following upper abdominal surgery or trauma. Prevention is the best treatment, and prevention of injury of the pancreas during surgical procedures consists of keeping the tips of retractors away from the pancreas, avoiding injury to the blood supply to the pancreas, preserving the secondary pancreatic duct which may enter the proximal portion of the second part of the duodenum, and proper treatment of duodenal or gastric ulcers when they penetrate the pancreas. A duodenal ulcer should not be disturbed if it penetrates the pancreas unless adequate removal of the gastric antrum is not possible without mobilizing the ulcer. When there is marked inflammatory reaction about such an ulcer, it may be wise to do an exclusion operation or to carry out a vagotomy with gastroenterostomy. It is not wise to excise, suture, or try to cover the site of ulcer that has penetrated the pancreas. One should never carry the resection of the duodenum for a duodenal ulcer to a point that would endanger the secondary pancreatic duct or the common bile duct. Even a bleeding duodenal ulcer need not be resected. It is necessary only to place a suture ligature in the base of the ulcer.

The immediate surgical treatment of a traumatic injury of the pancreas consists of control of bleeding with nonabsorbable sutures and adequate drainage of the area. If acute pancreatitis develops, the treatment is medical. It is often difficult to differentiate between a surgical or other traumatic injury to a pancreatic duct and acute pancreatitis, but the treatment is the same with drainage of cysts or abscesses when they develop. Marsupialization is preferred to other forms of open drainage. This is discussed under pancreatic cysts. Spontaneous drainage or fistula formation may develop if there is injury to pancreatic ducts. Should a fistula continue to drain pancreatic juice, transplantation of the fistula to the gastrointestinal tract is then indicated. The use of sump pumps to carry off drainage is frequently desirable to protect the skin. Loss of fluids and electrolytes following the development of a fistula from the main duct must be compensated for by replacement. The return of such drainage to the gastrointestinal tract first through a small plastic tube inserted

into the duodenum through the nose, esophagus, and stomach, and later by transplantation of the fistulous tract to the gastrointestinal tract may improve the nutritional state markedly. The use of large doses of ephedrine or Banthine may suppress the external secretion of the pancreas enough to materially reduce the loss through a fistula and aid closure of the fistulous tract.

ACUTE PANCREATITIS

The treatment of acute pancreatitis is medical. No surgery should be performed during the acute phase of the disease if the diagnosis of acute pancreatitis is established even if there is known biliary tract pathology, unless there is obstructive jaundice and then only the simplest drainage of the biliary system should be carried out. If any other surgery is carried out during the acute phase of acute pancreatitis, the mortality is much higher than with medical management. A laparotomy should, however, be carried out if the diagnosis is in doubt. A perforated duodenal ulcer may also cause a high serum amylase level. Frequently, drains have been placed in the lesser omental sac when a laparotomy has been performed in the presence of acute pancreatitis. However, many who have tried to evaluate drainage in this situation feel that the peritoneal cavity should not be drained in the presence of acute pancreatitis. The free fluid in the peritoneal spaces may have some protective effect by inactivation and dilution of the proteolytic enzyme. Certainly, the presence of the peritoneal fluid causes no harm. No attempt should be made to release the compression of the pancreas by incising the peritoneum over it.

After the acute phase has subsided, any cyst or area of suppuration should be adequately drained. Methods of drainage are discussed under pancreatic cysts. If there are demonstrated gallstones or a nonfunctioning gall bladder, a cholecystectomy should be carried out. This, however, should not be done for about six weeks, after which time the inflammatory reaction should have subsided. At the time of such a cholecystectomy exploration of the common bile duct for stones should be carried out routinely and a sphincterotomy or, perhaps better, a sphincteroplasty should be done.

CHRONIC RELAPSING AND PROGRESSIVE PANCREATITIS

Chronic relapsing and progressive pancreatitis is not ordinarily a sequela of acute pancreatitis.

As stated by Probst and Sachar, it is quite possible that acute pancreatitis and chronic relapsing and progressive pancreatitis may have entirely different pathogenesis, a relationship analogous to that of acute infectious hepatitis and alcoholic cirrhosis of the liver. Before undertaking surgical treatment of chronic relapsing and progressive pancreatitis one must evaluate possible opiate addiction and possible deficiencies of internal and external secretion of the pancreas.

A varied assortment of surgical procedures is carried out for the treatment of chronic relapsing and progressing pancreatitis. If there is known biliary disease such as cholelithiasis, a cholecystectomy should be done; the common bile duct should be explored at this time and a sphincteroplasty of the sphincter of Oddi carried out after the manner of Smith and Jones. In doing a sphincteroplasty a generous portion of the sphincter is cut away so that when healing takes place the pancreatic duct and common bile duct have separate openings into the duodenum without any sphincter. Mulholland, however, has had good results with his internal sphincterotomy. Richmond and Colp have advocated gastric resection as a means of cutting down on the stimulation to the pancreas by diverting the gastric content from the duodenum. However, it is generally believed that a gastric resection should be done only where there is other indication for such a procedure. If there are pancreatic cysts, drainage or marsupialization should be carried out. If a persistent sinus with drainage of pancreatic juice develops and there has been relief of the symptoms of the chronic pancreatitis, such a sinus should be transplanted into the jejunum. If the symptoms of chronic pancreatitis persist after drainage of a cyst, and a sinus draining pancreatic juice is present, one should then consider resection of the distal portion of the gland, especially if it contains the origin of the fistula. It might be possible to remove a stone from the main pancreatic duct to relieve obstruction of that duct, but calcinosis of the gland is much more common than actual stones within the duct and a lithotomy would not often be possible. Complete ligation of the pancreatic duct has been proposed as a means of controlling pain by destroying the entire portion of the gland devoted to external secretion. This would have the disadvantage that the patient would be de-

prived of important digestive juices. Thoracolumbar sympathectomy or splanchnicectomy is sometimes successful in relieving pain of chronic pancreatitis. These procedures on occasion are successful on either the right or the left side. If a paravertebral sympathetic block relieves pain when it is carried out on just one side, it can be expected that a unilateral splanchnicectomy or thoracolumbar sympathectomy would be successful in relieving pain. Otherwise a one stage bilateral procedure should be carried out. Vagotomy has been proposed for relief of chronic pancreatitis pain but this seems to be of little value. After failure of other methods resection of pancreatic tissue is sometimes successful. The resection of the body and tail of the pancreas is not a particularly hazardous procedure and would seem in order if the calcinosis or fibrosis were located in this portion of the gland. The disease is usually limited to the distal pancreas when the etiology had been trauma which injured the pancreas over the vertebral body. In a few cases the Whipple resection (pancreatoduodenectomy) has been carried out with relief of most of the symptoms of chronic pancreatitis. For the most part, however, this has been done for this disease when carcinoma of the pancreas had been suspected but only chronic pancreatitis found in the surgical specimen. This is discussed under the subject of carcinoma of the pancreas. Total pancreatectomy has been proposed for treatment of this disease but as yet this form of treatment is little if any better than the disease. Total pancreatectomy is accompanied by a rather high mortality and, of course, absence of pancreatic digestive juices, and the resulting diabetes is a rather severe problem.

PANCREATIC CYSTS

Cysts of the pancreas are varied in type and include pancreatic cysts associated with polycystic disease in other organs, fibrocystic disease, inflammatory or traumatic pseudocysts and retention cysts, and neoplastic cysts. The neoplastic cysts are dermoid cysts, teratomata, cystadenomata, and cystadenocarcinomata. Echinococcus cysts of the pancreas have been reported. The cysts of surgical importance are pseudocysts, retention cysts, benign cystadenoma, and papillary cystadenocarcinoma. These cysts are found within the lesser peritoneal sac and usually present through the gastrohepatic or gastrosplenic ligaments. Frequently a pseudocyst is actually an accumulation of fluid within the lesser

sac with the lesser omentum along with the stomach and colon making up the wall of the cyst. The fluid within the cyst varies from clear liquid to thick brown or purulent material. Eighty-five per cent of the patients with pseudocysts have upper abdominal pain and 80 per cent have a palpable mass in the upper abdomen. Not infrequently an undiagnosed pseudocyst is discovered as an incidental finding at the time of cholecystectomy. There are four forms of treatment available to the surgeon in the treatment of pseudocysts. These are excision, marsupialization, simple drainage, and anastomosis of the cyst to the stomach or other portion of the gastrointestinal tract. In the last several years there has been considerable interest in the anastomosis of such cysts to the gastrointestinal tract because of a desire to get away from the somewhat prolonged period of drainage when marsupialization or simple drainage is used. The technique of anastomosis is simple and the result usually satisfactory; however, marsupialization of a pseudocyst may be preferable when possible. Marsupialization consists of suturing the mouth of the opened pseudocyst to the parietal peritoneum and skin leaving a stoma 2 or more centimeters in diameter. Suturing the opening of the cyst to the parietal peritoneum as well as the skin gives quite good assurance against the formation of a ventral hernia. When the pseudocyst is too small to reach the abdominal wall, a mushroom catheter may be sutured into the cyst and carried out through the abdominal wall. The catheter used for this purpose should be of large caliber. The objection to anastomosing the cyst to the gastrointestinal tract is that it produces an abnormality of the gastrointestinal tract which is unnecessary in the majority of cases. The majority of pseudocysts do not drain pancreatic juice over a long period of time if they are adequately drained, and likewise do not form recurrent cysts if adequately drained. In the occasional case where a persistent draining sinus results, this sinus can then be transplanted from the skin to the gastrointestinal tract — usually the jejunum is preferable to the stomach. Attempts to stop the drainage from a pancreacutaneous sinus by the use of silver nitrate, sodium morrhuate, x-ray irradiation, radium, etc., are quite useless.

Pseudocysts can seldom, if ever, be excised as the wall of the cyst consists of the abdominal structures such as colon and stomach. Retention

cysts can often be excised but there is the problem of continued drainage of pancreatic juice from the site of excision. If such a cyst is located in or near the tail of the pancreas, resection of the distal portion of the pancreas is the most suitable form of treatment. For retention cysts at or near the head of the pancreas, anastomosis to the gastrointestinal tract would be in order if active flow of pancreatic juice could be demonstrated at the time of surgery. If flow of pancreatic juice is not demonstrated, one should carry out marsupialization or catheter drainage if marsupialization is not possible, and anastomose only the occasional persistent draining sinus to the gastrointestinal tract. Neoplastic cysts, of course, should be resected if possible. Marsupialization or drainage of a cystadenoma results in a permanently draining sinus. A cystadenocarcinoma should be excised widely for obvious reasons, and, if necessary, total pancreatectomy would be justifiable. A cystadenocarcinoma would be identified by projection of malignant tissue into the cyst.

ISLET CELL ADENOMATA OF THE PANCREAS

The significant islet cell tumors of the pancreas produce insulin and the resulting hyperinsulinism produces the symptomatology and signs which are exactly the same as a diabetic's insulin reaction. The diagnosis, however, is frequently overlooked, and many patients with islet cell adenomata have come to surgery through the neuropsychiatric service where they had been admitted with a diagnosis of epilepsy. The only treatment of islet cell adenomata is surgical removal of the adenomata. However, before surgical exploration is justified, certain criteria must be established. Other possible causes of hypoglycemia, such as liver disease, pituitary disease, thyroid disease, central nervous system disease, and adrenal disease, must be ruled out. Symptoms must be rather severe and symptoms must be present in spite of dietary regulation. This dietary regulation consists of a diet high in protein and fat but very low in carbohydrate. There must be repeated fasting blood sugar determinations below 50 mg. per 100 cc. of blood. Self-administration of insulin must be ruled out. Priestley has had experience with malingerers who have used insulin. The glucose tolerance test adds no information to that obtained by fasting blood sugar determinations. Adrenalin and ACTH will control the hypoglycemia but

these cannot be administered for any lengthy period of time. Alloxan apparently destroys normal islet cells but does not destroy the cells of the adenomata. Intravenous glucose is ordinarily given before, during, and after surgery. After surgical removal of adenomata there is usually a period of hyperglycemia lasting several days.

Most islet cell adenomata are benign. About 10 per cent of the cases have multiple adenomata. Adenomata have been reported in aberrant pancreatic tissue. An adenoma as small as 2.5 mm. in diameter has been reported by Priestley to cause rather severe hypoglycemia. This small size makes location within the pancreas difficult or impossible in certain cases. Usually, however, an adenoma can be found and removed by enucleation. An adenoma is more firm and darker in color than the remainder of the gland. If an adenoma is found deep in the substance of the tail of the pancreas, it is more satisfactory to resect the tail of the pancreas than to enucleate the tumor. When no adenoma can be found, resection of two-thirds of the gland is indicated. The entire gland, however, must be mobilized during the surgical procedure as about 20 per cent of the adenomata will be found in the head of the pancreas, and in 10 per cent of the cases there will be multiple adenomata. As many as seven adenomata have been found in one pancreas. When a large portion of the pancreas has been resected in the absence of ability to locate an adenoma, an adenoma can sometimes be found in the surgical specimen by the pathologist. If the pathologist finds an adenoma, the prognosis is good; otherwise, the patient is likely to continue to have hypoglycemia. A search for ectopic pancreatic tissue should be carried out if no adenoma is found. If removal of two-thirds of the gland has not resulted in relief of symptoms, additional resection should be carried out. Total pancreatectomy, however, is not recommended for reasons stated elsewhere.

Occasionally an extensive neoplastic process is found with the islet cell tumor being malignant. The malignant tumor does not always produce insulin but when it does, very radical surgery is justified, even though the ultimate outlook is hopeless, because of the uncontrollable hypoglycemic state accompanying such a tumor.

CARCINOMA OF THE PANCREAS AND AMPULLA OF VATER

The treatment of carcinoma of the pancreas

is very discouraging. In spite of the poor prognosis, however, patients with suspected carcinoma of the pancreas should not be denied the chance of early exploration when a carcinoma might be cured. The experience in the past few years has shown that the Whipple operation (pancreatoduodenectomy) should be carried out only in very early or small carcinoma of the head of the pancreas or carcinoma of the ampulla of Vater. In more advanced carcinoma of the head of the pancreas the course of the disease is not altered by this or other surgical procedure. Carcinoma of the body and tail of the pancreas which would be more easily resected is unfortunately seldom, if ever, diagnosed before there are widespread metastases or extension into vital structures.

Carcinoma of the ampulla of Vater is frequently papillary and located within the ampulla and not visible until the ampulla is opened, but it is palpable as a spherical submucosal nodule, or the area of the duodenal papilla may feel elongated and firm. This carcinoma is not diagnosed and does not come to surgery unless it obstructs the common bile duct. At the time of surgery the pancreatic duct is also obstructed in only about 25 per cent of the cases. Because of the jaundice or pruritus with this lesion diagnosis is made early when cure is possible; so the Whipple resection is definitely indicated for carcinoma of the ampulla of Vater.

Preoperative preparation must include return of the prothrombin time to normal or near normal by the use of vitamin K, as well as improvement of the nutritional state and the use of blood transfusions.

In carcinoma of the head of the pancreas, biopsy of the pancreas at the time of surgery is very often not satisfactory. Usually only chronic pancreatitis can be demonstrated in spite of the underlying carcinoma; so it is usually necessary to resect without positive evidence of carcinoma. The surgeon however needs something more than suspicion to go on. Cattell has pointed out that a surgeon should not proceed with a radical pancreatoduodenectomy unless there is dilatation of either the pancreatic duct or the biliary tract. The site of biopsy of the pancreas has not infrequently resulted in a fistula which drains pancreatic juice. This undesirable situation can usually be prevented by avoiding the anterior surface of the gland — the location of the main pancreatic duct, and by

suturing across the biopsy site with a nonabsorbable suture. The problem of getting a positive biopsy from a carcinoma of the head of the pancreas has led to the use of the Silverman needle in order to get a deeper biopsy. This method, however, is reported to result in draining fistulae too frequently to warrant its use. A deep biopsy of the head of the pancreas may be taken through the opened second portion of the duodenum. A resulting fistula would then drain into the duodenum, eliminating the hazard of a fistula. There, however, is some hazard of unobserved bleeding and/or acute pancreatitis. This hazard seems preferable to that of performing a radical pancreatoduodenectomy in a patient who may not have a carcinoma of the head of the pancreas. A Whipple resection consists of a block resection of the pylorus, duodenum, lower end of the common duct, and head of the pancreas, with reanastomosis of the stomach, pancreas and common duct, preferably in that order, to the first part of the jejunum.

Palliative anastomosis of the gall bladder or common duct to the gastrointestinal tract relieves jaundice and itching, but nutrition and duration of life are not improved by this palliative procedure. Cattell has recommended anastomosis of the dilated pancreatic duct, which is readily obtainable on the anterior surface of the gland, to the jejunum in addition to the anastomosis of the biliary system to the gastrointestinal tract. This is thought to improve the nutritional state and perhaps the duration of life. Splanchicectomy or alcohol injections about the splanchnic nerves have been suggested as a means of controlling pain, but the life expectancy is only a few months once the diagnosis of inoperable carcinoma of the pancreas is made.

A two-stage pancreatoduodenectomy is possible and should be carried out if the patient is a poor risk, if the operative conditions are not satisfactory, or if the surgeon is not sufficiently experienced. The two-stage procedure, however, in no way reduces the extensiveness of the second stage. The first stage consists of a cholecystojejunostomy at a point about 18 inches from the ligament of Treitz.

BENIGN TUMORS OF THE AMPULLA OF VATER

Benign tumors of the ampulla of Vater are even less common than carcinoma of this structure. The majority of these benign lesions are adenomata or papillomata. Good results are

obtained from local excision of the tumor with reanastomosis of the common bile duct and pancreatic duct to the duodenal mucosa. Every lesion of the ampulla of Vater should be examined by frozen section and the surgery limited

to a local excision of the lesion unless it is proven to be carcinoma. The lesion is approached through a longitudinal opening in the second portion of the duodenum which later is closed transversely.

SOME FACTORS AFFECTING THE RADIO-THERAPEUTIC APPROACH TO CARCINOMA OF THE CERVIX

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THE rationale of radiation treatment in carcinoma of the cervix is to deliver a cancericidal dosage to the tumor without permanently harming the normal tissue. This sounds like a very simple situation but there are at least three main shortcomings in trying to apply this rationale.

First of all, in any particular case, the cancericidal dose is not accurately known. It may require anywhere from 4,500 to 10,000 roentgens (treatment time not stated) for tumor control(1). The difference in radiosensitivity at first was thought due to differences in cell structure, so attempts were made to correlate dosage with the histology of the tumor. But given two different cases, tumors with the *identical microscopic* appearance would respond *differently* to the same roentgen dosage. Contrarywise, tumors with *different* microscopic appearance might respond similarly to the same roentgen treatment.

This variation in tumor response to radiation may be due in part to biological dissimilarities, but also is affected by another unpredictable factor known as the "host reaction". That is, there is something in the way the body's defenses react to both the radiation and the tumor that is necessary for tumor control.

If one could push safely to the larger cancericidal dosage, more tumors would be sterilized. Our only limiting factor preventing this is the tolerance of normal tissue. Here again we have variables, however. The tolerance of normal tissue to irradiation varies from person to person. It varies with the volume of tissue irradiated, larger volumes standing less irradiation. It varies also with the type of radiation and the rate of application.

The third difficulty, in addition to the variation in cancericidal dosage, and in normal tissue tolerance, is that the exact location and extent of the carcinoma is not known.

Several statistical and morphological factors help clarify the extent of the disease, however (Table 1). (See Page 371).

Microscopic studies of clinical staging shows that clinical staging, our best method of categorizing at present, frequently differs from the real extent of the tumor(1, 2, 3).

Thus approximately 20% of League of Nations Stage 1 on microscopic examination are really much more extensive due to pelvic lymph node involvement, and an even greater number of Stage 1 have parametrial involvement. There are even a few per cent of clinical Stage 1 that have unrecognized extra-pelvic metastases.

Clinical Stages II and III also are more advanced than physical examination or x-ray studies tell us in about *half* of the cases. The converse also frequently occurs, that is, the tumor is less extensive on pathologic examination compared with physical examination, induration, or masses being inflammatory in origin.

In trying to determine which tumors in any *one* particular clinical stage will metastasize more readily than any other tumor in the same clinical stage, generalizations can be made.

Thus the *gross appearance* of the carcinoma may give a clue to its extent. Exophytic tumors, clinical Stage I, for instance, produce lymph node carcinoma one-third as often as a similar stage infiltrating carcinoma(1).

Microscopic appearance is also a help since well differentiated Grade I squamous cell carcinoma metastasizes to lymph nodes much less often than undifferentiated Grade III, perhaps half as frequently(5).

*Read before Arizona Medical Association, Chandler, Arizona; April, 1954.

The gross extent of the tumor in any one stage may be another prognostic factor. If less than one-third of the thickness of the cervix is involved in Clinical Stage I the chances of lymph node metastases are extremely rare, whereas lymph node metastases may rise to 20% if greater than half the thickness of the cervix is involved.

The nodes that are involved most frequently are the lymph nodes at the lateral pelvic wall with the hypogastric nodes (just under the sacroiliac joint) and the obturator node (at the entrance to the obturator foramen) next most often involved. Nodes in the parametrium are also frequently involved.

Knowing the above factors which affect the extent of the tumor, and having an approximate idea of a cancericidal dose and normal tissue tolerance I would treat a carcinoma of the cervix by attempting to deliver adequate irradiation to the known and suspected tumor areas. This would vary with each individual case.

First, however, we should decide on the necessity of external roentgen irradiation. When should a patient receive external irradiation and when should he not?

I feel that well differentiated small lesions League of Nations Stage I do not warrant heavy, or perhaps any external x-ray. The same can be said for Stage I exophytic small lesions. In other early League of Nations Stage I, I would give external x-ray but not of the amount to give a high risk of radiation complications.

However, in League of Nations Clinical Stage II, the chance of more lateral extension of the disease to the pelvic wall is high, approximately 40%, by virtue of parametrial or lymph node involvement, and therefore, higher dosage should be risked.

Clinical Stage III of course demands external radiation and assumes more importance relative to the radium than in earlier stages.

If only radium is used, a minimum dose of 6,000 roentgens in seven days to a 4 cm. in diameter sphere should be given since few cases are controlled with smaller doses(4).

Preliminary x-ray, that is, x-ray treatment before the radium treatment, might be used in septic cases, and cases where good radium placement cannot be made because of bulky tumor. After the tumor is decreased in size by external radiation, better radium placement may be pos-

sible. Preliminary x-ray is also useful to control hemorrhage.

As I intimated previously radium *only* is best suited for early well differentiated or exophytic Stage I.

Radium plus more extensive x-ray on the tumor-affected side of the pelvis might be used in unilateral Stage II's, since less than 10% have recurrence on the opposite side and perhaps in unilateral Stage III where the general condition of the patient would not permit adequate treatment of the entire pelvis, or where there has been inadequate radium application to the affected side.

It must be remembered that intracavitary radium alone, no matter whose system of application is used, rarely irradiates effectively outside of a 5 or 6 cm. diameter sphere.

Using a therapeutic approach based essentially on the above data, we have suggestive evidence that we may be improving our results in the radiation treatment of carcinoma of the cervix (Table II). The table seems to indicate that our results might be improving since 1948 when treatment was individualized and patients were irradiated somewhat more intensively. The figures represent clinic patients only who were mainly treated by the resident staffs of the Departments of Obstetrics and Gynecology and Radiology. There was no essential difference in the percentage of early or advanced stages between the 1940-1947 group as against the group treated in 1948(6).

The number of cases treated is relatively small and the follow-up in many of the cases is relatively short and final evaluation is yet to be performed.

TABLE I

Clinical Stages - Carcinoma of the Cervix*

O	Preinvasive carcinoma
I	Carcinoma confined to the cervix
II	Spread into parametrium, but not to pelvic wall; involvement of upper two-thirds of vagina
III	Spread to pelvic wall on one or both sides; lower one-third of vagina
IV	Bladder, rectal, or distal spread (When in doubt choose earlier stage)

*Abbreviated from League of Nations classification.

TABLE II

Stanford Results - Carcinoma of the Cervix***

Year Treated	No. Treated	Lost	% Five-Year Survival	Treated Elsewhere
1940-1947	193	2	40.0	
1948	19	0	77.5	12
1949	26	0	57.5 (4 yrs.)	7
1950	21	0	71.0 (3 yrs.)	4
1951	31	0	58.0 (2 yrs.)	2
1952	23	0	78.0 (1 yr.)	3
1953	30	0	—	9

*Compiled by Dr. Charles McLennan, Professor of Obstetrics and Gynecology, Stanford University School of Medicine.
 **Stage 0 not included.

SUMMARY

1. There is great variation in normal tissue tolerance to irradiation dependent on many variables such as the volume of tissue irradiated and the type and rate of radiation;

2. There is great variation in the clinical staging of carcinoma of the cervix with the actual microscopic findings. Tumor can actually be

more or less extensive than the clinical findings. The extent of the tumor also seems to vary within any one League of Nations staging depending on gross and microscopic morphology.

3. Intracavitary radium alone cannot adequately irradiate a sphere of cancer containing tissue greater than 5 or 6 cm. in diameter without injuring the normal tissue.

4. The radiation treatment of carcinoma of the cervix should be individualized with the aim of delivering adequate radiation to known and probable tumor-bearing areas taking into account the above mentioned variables.

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PHOENIX *Clinical* CLUB

The Case History in this discussion is selected from the Case Records of the Massachusetts General Hospital, and reprinted from the *New England Journal of Medicine*. The discussant under Differential Diagnosis is a member of the staff of the Massachusetts General Hospital. The other discussants are members of the Phoenix Clinical Club.

MASSACHUSETTS GENERAL HOSPITAL PRESENTATION OF CASE

A fifty-seven-year-old man was admitted to the hospital because of confusion and weakness.

The patient was well, active and alert until approximately three and a half months prior to admission, when he began to complain of moderately severe, constant, left midthoracic and paraspinal pain that radiated up and down the spine and was increased by local pressure, motion and prolonged sitting. Three months before admission generalized weakness and nervousness and moderate occipital and neck pain, with slight tenderness in this region, developed. About one and a half months prior to entry when the patient was in another hospital for a

short time, allegedly he was told that he had bronchial asthma and that x-ray films of the spine showed "arthritis" and that those of the stomach were normal. His general health failed gradually; he had increasing asthenia, anorexia, nervousness and aches in his neck and back, and became confused and irritable. Three weeks before entry an ache in the lower back that radiated into both hips and legs developed. Examination at another hospital one week prior to admission revealed generalized weakness, bloody spinal fluid, stiff neck, absent reflexes and weakness in the legs. The confusion and irritability gradually became more severe.

There was no history of injury, localized headache, unconsciousness, convulsions, chills, fever, visual disturbances, cough hemoptysis, dyspnea or gastrointestinal or urinary symptoms. He had lost 25 pounds in weight in the three and a half months prior to entry.

Physical examination disclosed a dehydrated, agitated, over-active man, who appeared chronically ill and complained of neck pain. The mucous membrane of the mouth was red, dry and crusted and the tongue was black. The

neck veins were flat. The heart size was within normal limits; there was a Grade I apical systolic murmur. The abdomen was soft, and there were no palpable organs or masses. The prostate was slightly enlarged but was not hard or nodular. There was marked nuchal rigidity, with marked pain on attempted flexion and tenderness on palpation of spinous processes in the neck and lumbar region. The patient followed most commands well but could only speak a few incoherent words in a simple way. The pupils were equal and regular and reacted to light and on accommodation. The optic discs were blurred bilaterally; there were no hemorrhages or exudates. There was a suggestion of weakness of both lower facial nerves. In response to the command to close his eyes, the eyes would roll upward; he was able to follow objects without any apparent difficulty. The corneal reflex was absent. The gag reflex was present. His hands were tremulous and moved in a random twitching manner. The strength in the arms appeared slightly diminished, and the deep tendon reflexes were present and equal. He was unable to perform adequately the finger-to-nose test. The abdominal reflexes were present. There was a suggestion of weakness of the right leg, although he was able to move both legs. There were absent reflexes in the lower extremities, and the plantar reflexes were flexor. He claimed to feel vibrations and seemed to be able to note position correctly. Examination of the sensory system was unsatisfactory.

The urine gave a one plus reaction for albumin. Examination of the blood revealed a hemoglobin of 15 gm. and a white-cell count of 9800, with 80 per cent neutrophils. The nonprotein nitrogen was 32 mg., the bilirubin 0.3 mg. direct and 0.7 mg. total and the protein 5.30 gm. per 100 cc., with an albumin-globulin ratio of 1.9; the serum sodium was 152.2 milliequiv., the chloride 116 milliequiv., the potassium 3.8 milliequiv., and the carbon dioxide 26.5 milliequiv. per liter. Lumbar puncture revealed clear, yellow spinal fluid under an initial pressure equivalent to 250 mm. of water; the fluid contained 500 mg. per 100 cc. of protein, 10 mg. per 100 cc. of sugar and 126 milliequiv. per liter of chloride and 145 red cells and 52 white cells (almost all mononuclear cells) per cubic millimeter. The colloidal gold curve was 0001112222, and the spinal-fluid and blood Hinton tests were

negative. A smear of the spinal fluid showed no organisms or acid-fast bacilli, and a culture yielded no growth. Roentgenograms of the chest demonstrated a homogeneous density in the right first inter-space lying somewhat posteriorly, and narrowing of the trachea just above the clavicle.

The patient was placed on fluids parenterally, streptomycin and PAS (para-aminosalicylic acid). There was little change in his condition, and the temperature remained elevated, varying between 101 and 103° F. On the sixth hospital day a lumbar puncture showed an initial spinal-fluid pressure equivalent to 600 mm. of water; the fluid was slightly xanthochromic and contained 110 cells per cubic millimeter, of which 28 were red cells and the rest large granular cells. The fluid contained 166 mg. per 1000 cc. of protein, 28 mg. per 100 cc. of sugar and 106 milliequiv. per liter of chloride. The patient remained confused and semicomatose and refused oral feedings and medication. He gradually became comatose, and opisthotonos developed; there was no other definite change in the physical findings. He died on the fourteenth day.

DR. ROBERT S. FLINN

"The Saga of the Cigarette Fiend or What Five Leading Brands did to Percival Pimpstick"

Percival Pimpstick, age 55, entered the Massachusetts General Hospital complaining of pain in the back, weakness, loss of weight, etc. and died fourteen days later from primary carcinoma of the lung with metastasis to the central nervous system. As they say on the radio programs "let us turn the clock back and look in on our hero some years prior to his admission to the hospital."

Percy was an average American boy in an average American home whose surroundings and home life were not remarkable except in one respect — he was treated with pathological solicitude by both his father and his doting mother and many of the facts of life were denied him. His father, a benign, obese, emphysematous and mildly asthmatic physician, was too busy switching from one leading brand of cigarettes to the other to have time to tell our hero of the harmful effects of cigarette smoking. For example, he was not told that smoking is one of the most prominent sources of bronchial irritation, that all chronic cigarette smokers suffer from a chronic bronchitis and that no individual with bronchitis should irritate his inflamed mucus membrane

with smoke any more than a patient with conjunctivitis should blow smoke in his eyes. He was not warned that high-pressure salesmanship was being exerted upon the public to encourage smoking. Or how the fact that tobacco companies advertise how much less irritating their own brand of cigarettes are than some of their competitors product is a tacit admission that cigarette smoking is a bronchial irritation. Moreover Percy's father was so engrossed in testing cigarettes with built-in filters or those treated with menthol and various other medicaments that there was no time left for him to peruse the medical literature and to learn of the close relationship between heavy smoking and lung cancer. For example he was not aware that Winder and Cornfield made a survey of doctors who died of carcinoma in the years 1950 and 51 and found that the mortality rate from cancer of the lungs was 10 per 100,000 among non-smoking physicians and 133 per 100,000 among physicians smoking 35 or more cigarettes a day. However, in defense of the father, it must be pointed out that aside from this slight deficiency in education, the boy was given every opportunity. He was sent to a fashionable preparatory school, a mediocre but snobbish college and wound up as a very successful broker, the head of his own firm, at the age of 35. He led an exemplary life. He neither drank, smoked, played the horses or associated with socially-inferior persons. Civic and business honors were heaped upon him all of which he accepted with great modesty and equanimity. Then, one fateful day, he was approached by an advertising agency to pose as the man of distinction, complete with Brooks Brothers tweed coat, his paneled library as a background holding a cigarette and exclaiming — "they satisfy." The cigarette was placed in his hand in the conventional manner by an agency employee, a match was struck and the nostrils of our hero were assailed by a delightful aroma of a secret mixture of the cream of the crop of mild Virginia, semi-mild burley and aromatic latakia, the latter from the sun-drenched hills of far-off Asia Minor. Still sceptical, he took a puff, then another, then another, then another and when the clear, cool, soothing smoke, (the irritating product having been removed by secret process), filled his bronchial tree, he knew at last what real contentment meant. From that moment, the fate of our hero was sealed. He became a cigarette fiend; not

only did he smoke cigarettes continuously while sitting at his office desk but he was seen frequently to be carrying a lighted cigarette while walking down the street or while driving his motor car. His entire life revolved around cigarette smoking. He shunned churches, operating rooms, filling stations and court rooms where smoking is not permitted and spent his time in saloons, drawing rooms, brothels and other places where cigarette smoking is not frowned upon. Then he began complaining of pain in his chest, weakness and nervousness and neck pain. One doctor guessed that he had asthma; another guessed that he had arthritis. The confusion on the part of his physicians aggravated the patient's own confusion and irritability and, according to the protocol, he gradually became worse. When he entered the hospital, he had stiffness of his neck, mental confusion and lack of muscular coordination. When the lumbar puncture was done showing a clear fluid without organisms, one physician guessed that he had tuberculous meningitis in spite of the fact that the blood chlorides were normal, if not slightly elevated, a condition, according to some authorities, which is never seen in tuberculous meningitis. Another physician guessed that he might have encephalitis in spite of the fact that in encephalitis the sugar content of spinal fluid is usually elevated rather than lowered. Another physician guessed that he might have a fungus infection such as torula. Someone else guessed that he might have a hypernephroma with cerebral and pulmonary metastasis.

But in spite of the streptomycin and para-aminosalicylic acid, the patient went quietly to his death on the 14th day never really knowing which of the five leading brands contained the highest percentage of packed-in goodness. At post mortem examination the pathologist found a primary carcinoma of the lung with extensive metastasis to the central nervous system.

DIFFERENTIAL DIAGNOSIS

Dr. Gardner Quarton: May I see the x-ray films?

Dr. Stanley M. Wmays: A quite homogeneous, rather irregular density is present in the right-upper-lung field, probably in the posterior portion of the lung. The trachea on the right is indented probably by some intrinsic pressure on its right aspect just above the clavicle. Otherwise, I do not see anything abnormal.

Dr. Quarton: This patient obviously had

disease in at least two places; in the central nervous system, certainly in the meninges, and in the chest. The course of the illness, with the insidious onset and gradual increase in symptoms, suggests either neoplasm or infectious disease that began gradually and proceeded to death, which was apparently almost inevitable.

He had a great many findings and symptoms, some of which may be important and many of which are really difficult to interpret. The pain in the left midthoracic region, since the finding in the chest was on the right, I should suppose was not due to the condition in the chest but was referred pain. It is interesting that he was told that he had bronchial asthma. One wonders whether the findings in the chest were responsible for the symptoms that led to that diagnosis. The pain in the lower back, I do not believe can be explained at this point. The bloody spinal fluid that was found in the other hospital is difficult to interpret and may have been due to a traumatic tap. It would be helpful to know what the findings were in that spinal fluid. I think the negative statements are also interesting; he had no chills or fever, cough or hemoptysis. The 25-pound weight loss is consistent with a progressive neoplastic disease or illness of infectious type. Physical examination revealed definite signs of meningeal irritation — nuchal rigidity and tenderness on palpation in the neck and in the lumbar region. There was some evidence of increased intracranial pressure: the optic discs were blurred, and the cerebrospinal-fluid pressure was elevated, but not extremely elevated.

There seems to have been no convincing evidence for involvement of the long tracts of the nervous system that would help me in localization of parenchymal disease. The incoherence of speech, the disturbance in behavior and the gradually disorientation suggest some generalized process, probably involving the cortex; they could equally well have been due to tumor within the brain. The weakness of both lower facial nerves was merely questionable. There was nothing else to suggest trouble with the upper motor neurons, so that I am going to disregard that. The rolling of the eyes upward is physiologic but is often seen in patients with peripheral seventh-nerve lesions; yet there were no other signs of seventh-nerve involvement. I shall assume that there was some seventh-nerve weakness but that it was not really conclusive.

The corneal reflex was absent there was no other evidence of fifth-nerve difficulty. The other superficial reflexes — the gag reflex and the abdominal reflexes — were present. The absence of the corneal reflexes may have been due to the general disturbance in consciousness. The disappearance of strength in the arms and to some extent the weakness of the legs suggest involvement of the motor system, but there was no definite evidence of a paralysis. The difficulty in performing the finger-to-nose test could have been due to a general lack of co-operation. On the other hand all those findings could have been due to trouble within the brain or within the cerebellum. The fact that the reflexes were present in the upper and absent in the lower extremities suggests some kind of disease in the nerve roots to the lower extremities. The fact that the planter reflexes were flexor, however, suggests that the long tracts of the spinal cord were not significantly involved. So does the apparent ability to note position and vibration.

The laboratory findings are interesting. The hemoglobin was normal, and the white-cell count was not suggestive of an acute infectious disease. The nonprotein nitrogen was within normal limits, the bilirubin not very abnormal, the total protein somewhat low, the sodium and chloride slightly high, and the carbon dioxide normal. The patient was not seriously dehydrated, although his tongue was dry. The most interesting and most important laboratory findings were the spinal-fluid findings. The cerebrospinal-fluid pressure was definitely increased, the protein high (500 mg. per 100 cc.), the sugar unusually low, and the chloride high but consistent with the serum chloride; the fluid contained abnormal cells, chiefly mononuclear cells. Those findings indicate a meningeal reaction, and the problem is a differential diagnosis among certain types of meningitis.

One should consider and discard syphilitic infection. The Hinton test was negative, and the colloidal-gold test was not consistent with syphilis. Tuberculous meningitis is a strong possibility. I am not clear enough about the signs in the chest to say whether they were consistent with tuberculosis. Both the clinical course and the diffuse pain could be explained by a chronic meningitis process of the tuberculous type.

I also have to consider very strongly yeast



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meningitis. I forgot to mention the black tongue — the patient could have had yeast on the tongue. In the meninges, torula would be the most likely candidate and could also account for a granulomatous process in the lung and the mass pressing on the trachea. I shall not mention the other rather rare yeasts and molds because I do not know of any way of making a differential diagnosis.

Weil's disease occasionally produces a lymphocytic meningitis, sometimes without jaundice, but I think it is very unlikely in this case. Tumors within the nervous system, involving the meninges, sometimes produce a picture simulating meningitis, — ependymomas metastatic to the meninges, — but as a rule the history and clinical picture are quite different; furthermore, there was evidence of disease outside the nervous system so I do not have to consider that.

So-called tumor meningitis — sarcomatosis, tumor arising from the cells of the meninges and spreading widely throughout the spinal fluid is a possibility. This can produce a high spinal-fluid protein. I am not sure what the sugar would be. I suppose plicolysis could occur, but I suspect that the low sugar favors a meningitis. Again the evidence of disease outside the nervous system makes that unlikely. There are tumors that metastasize to the meninges — carcinomas, sarcoma and lymphomas; they could explain the disease in the chest. I am not sure whether they could produce the low sugar. There were no localizing signs to indicate another site in the body for tumor.

My diagnosis is torula meningitis, with the granulomatous lesions on the same basis as the meningitis; however, I do not think I can distinguish between a yeast meningitis and a tuberculous meningitis on clinical grounds.

Dr. Thomas Paine: When I saw this patient on the ward, I believed the history suggested a slowly developing meningitis. The signs of disease in the right-upper-lung field and the lymphocytes and the low sugar in the spinal fluid obligated us to treat him as though he had tuberculous meningitis; that is why he was put on streptomycin and PAS. Another possibility that was considered was tumor in the right-upper-lung field, with secondary infection, both of which had metastasized to the central nervous system.

Dr. Robert E. Schwab: I favored tuberculous meningitis, but I considered the other forms of

meningeal reaction and carcinomatosis. We considered torula, but the cultures were negative and so we eliminated that. As I remember, we planted it on ordinary media, in which the organisms will grow out late and on Sabouraud's medium; both cultures were negative.

Dr. John B. Stanbury: I am surprised that the mass in the trachea was not felt.

Dr. Wyman: It is not very large; it is quite low and close to the clavicle. It would be difficult to palpate.

CLINICAL DIAGNOSIS

Tuberculous meningitis.

Tuberculosis of lung.

DR. QUARTON'S DIAGNOSIS

Torula meningitis.

Torula infection of lung.

ANATOMICAL DIAGNOSIS

Adenocarcinoma of lung, with metastases to meninges.

PATHOLOGICAL DISCUSSION

Dr. Benjamin Castleman: Autopsy showed a primary adenocarcinoma in the superior bronchus of the right upper lobe that had metastasized to the regional lymph nodes in the hilar area; one large lymph node accounted for the x-ray picture of tracheal indentation. There was also a metastasis on the pleura and in one of the adrenal glands. If some of the spinal fluid had been sent to the cytology laboratory, tumor cells might have been picked up, because, as Dr. Richardson will describe, there was involvement of the meninges.

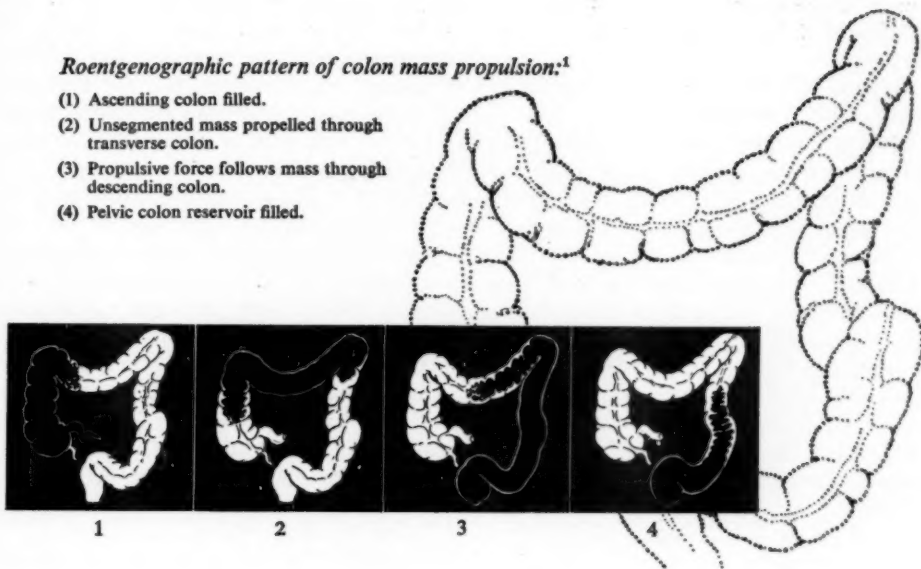
Dr. Raymond D. Adams: I believe Miss Eulalia Grzebieniowska saw them in the spinal fluid.

Dr. Edward P. Richardson, Jr.: At autopsy we found diffuse carcinomatosis of the meninges generally. It appeared as a diffuse thickening of the pia arachnoid to the extent that the normal landmarks of the spinal cord, base of the brain, cerebellum and sulci of the convexities of the cerebral hemispheres were somewhat obscured.

Microscopical examination showed large numbers of typical carcinoma cells presenting as cluster, small clumps and gland-like structures, indicating that this was an adenocarcinoma. The most severe involvement was in the meninges overlying the cerebellum, where tumor cells accompanied the vascular adventitia into the substance of the cerebellum and formed a few small clusters of cells within the cerebellar

*Roentgenographic pattern of colon mass propulsion:*¹

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Factors Contributing to Chronic Constipation

Such gentle stimulation is of distinct advantage in reeducating and reestablishing those reflexes which control bowel evacuation. Many factors may pervert the normal reflexes, causing finally chronic constipation. Among them are: nervous fatigue and tension, improper intake of fluid, improper dietary habits, failure to respond to the call to stool, lack of physical exercise and abuse of the intestinal tract through excessive use of laxatives.²

Correction of constipation logically, therefore, lies in the suitable adjustment of these factors. The characteristics of Metamucil permit the correction of most of these factors: it provides bulk; it demands adequate intake of fluids (one glass with Metamucil powder, one glass

after each dose); it increases the physiologic demand to evacuate; and it does not establish a laxative "habit." Metamucil, in addition, is inert, and also nonirritating and nonallergenic.

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The average adult dose is one rounded teaspoonful of Metamucil powder in a glass of cool water, milk or fruit juice, followed by an additional glass of fluid if indicated.

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1. Best, C. H., and Taylor, N. B.: *The Physiological Basis of Medical Practice: A Text in Applied Physiology*, ed. 5, Baltimore, The Williams & Wilkins Company, 1950, pp. 579-583.

2. Bagen, J. A.: *A Method of Improving Function of the Bowel*, *Gastroenterology* 13:275 (Oct.) 1949.

cortex. Otherwise, there was no parenchymal involvement of the central nervous system.

Dr. Charles S. Kubik: Was the seventh nerve affected?

Dr. Richardson: The nerve roots generally were infiltrated by adenocarcinoma.

Dr. Schwab: A number of such cases were reported at the spring meeting of the American Neurological Association. In a large percentage of those cases the sugar was at the level noted in the case under discussion.

Dr. Adams: We have observed several cases of carcinomatosis of the meninges like this one, in which the cerebrospinal-fluid sugar was too low to read. The three possible explanations of a subacute meningitis with low sugar are torula or some other fungus, tuberculosis and carcinomatosis. This patient's clinical course was unusually long for tuberculosis.

Dr. Quarton: How often do you find the organisms of torula in the spinal fluid?

Dr. Adams: Usually, they can be easily identified in a smear of the spinal fluid; sometimes, the fluid contains huge numbers of organisms. In 1 case we could not find them in repeated smears or isolate them by repeated culture, and yet at autopsy they could be seen in small numbers in the meningeal exudate.

Dr. Robert L. Berg: Why is the sugar so low?

Dr. Adams: I think it is because of the numerous number of cells. Merritt and Fremont-Smith demonstrated years ago that inflammatory cells lower the sugar. Perhaps, too, neoplastic cells contain more glycolytic ferments and if present in large numbers will reduce the sugar content.

Dr. H. E. Marks: How high does the protein have to be in the spinal fluid to be pathognomonic of tumor?

Dr. Richardson: A high protein alone is not pathognomonic; both neoplasm and inflammatory disease can raise the spinal-fluid protein quite high. One would have to be guided by the cytology and other components of the fluid.

NOTES OF INTEREST

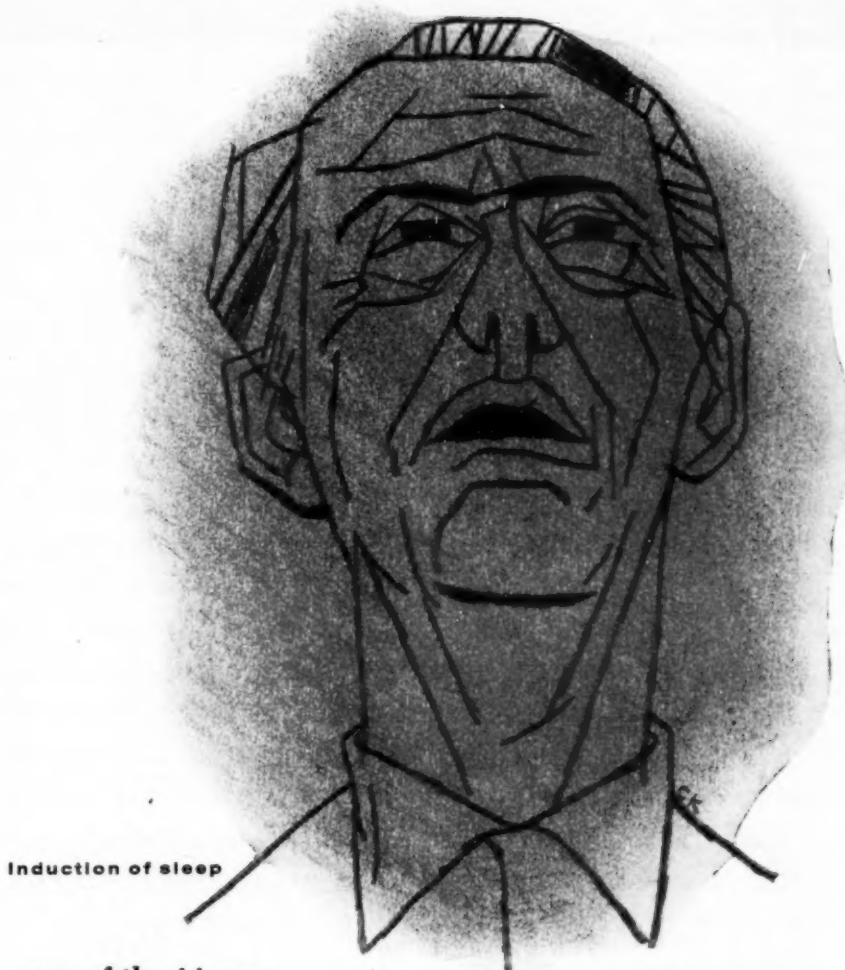
recent report received from the Washington Office of the American Medical Association comments as follows:

FUNDS ALLOCATED FOR EXPENDED HILL - BURTON CONSTRUCTION PROGRAM. Funds have been allocated to states for the first year's operations of the Hill-Burton expansion act, passed by the last Congress to stimulate the construction of health facilities. A total of \$21 million was made available by Congress, plus \$2 million for surveys. A total of \$6.5 million is set aside for diagnostic-treatment centers and the same amount for chronic disease facilities, and \$4 million for rehabilitation facilities and the same amount for nursing homes. Money must be used for diagnostic-treatment centers, nursing homes, chronic disease hospitals, and rehabilitation facilities. Except for money earmarked for rehabilitation facilities, states are allowed to shift money from one category to another. The money is distributed to states on a formula taking into account per capita income of the states as well as their population.

There is allocated to Arizona (in thousands rounded to the nearest thousand) \$300 of which \$100 is earmarked to each category "diagnostic-treatment centers" and "chronic disease facilities"; also \$50 each for "rehabilitation facilities" and "nursing homes".

NARCOTICS BUREAU WORKING ON ORAL PRESCRIPTION LAW. Treasury Department's Bureau of Narcotics, which is expected to administer the new oral prescription law (Public Law 729), is working on regulations preparatory to consultation with drug manufacturers, pharmacists, and American Medical Association on what drugs to place on the exempt list. This list will name all narcotics drugs having little or no addiction liability that may be prescribed by telephone. Meanwhile, the Bureau reminds physicians that the federal law does not supersede state laws barring oral prescriptions. Virtually all states, with the exception of California, forbid oral prescribing. With a majority of state legislators meeting this coming year, interested groups will be making a strong effort to get state laws changed to conform with the more liberal new U. S. law.

This new federal law provides that a number of narcotic drugs "having little or no addiction liability" may be prescribed over the telephone. It will be months, however, before the list can be compiled.



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THE *President's* PAGE

PUBLIC SERVICE AND ELECTION TIME

THE FALL SEASON HAS RETURNED AGAIN AND MOST OF US HAVE ENDED OUR VACATIONS. THIS SEASON IS COMMONLY THE TIME WHEN PUBLIC SERVICE IS AT ITS HIGHEST AND MEDICINE HAS BEEN INCREASINGLY ACTIVE IN SUCH SERVICE. SCHOOL EXAMINATIONS, COMMUNITY CHEST, RED FEATHER DRIVE AND CIVIC ENTERPRISES OF ALL TYPES ARE COMMANDING OUR RESPECT AND CO-OPERATION. THIS YEAR, IN ADDITION, IS AN ELECTION YEAR AND ALL DOCTORS SHOULD EXERCISE THEIR FRANCHISE CAREFULLY, EVALUATING THE ISSUE AND SUPPORTING THOSE CANDIDATES WHICH ARE GOOD FOR OUR STATE AND COMMUNITY. I BELIEVE THE STATUS OF MEDICINE IN RECENT YEARS DUE TO EFFORTS OF ITS ACTIVE MEMBERS, HAS BEEN ELEVATED A GREAT DEAL IN THE PUBLIC MIND, AND WE SHOULD MAKE EVERY EFFORT TO CONTINUE THE ADVANCE. ABOVE ALL ELSE, BE CERTAIN TO VOTE.

OSCAR W. THOENY, M.D.,

PRESIDENT, ARIZONA MEDICAL ASSOCIATION

Editorial

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The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Certain general rules must be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:

1. Follow the general rules of good English, especially with regard to construction, diction, spelling, and punctuation.
2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. (See MEDICAL WRITING by Morris Fishbein).
3. Be brief, even while being thorough and complete. Avoid unnecessary words. Try to limit the article to 1500 words.
4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.
5. Submit manuscript typewritten and double-spaced.
6. Articles for publication should have been read before a controversial body, e.g., a hospital staff meeting, or a county medical society meeting.

The Editor is always ready, willing, and happy to help in any way possible.

NURSING SCHOOLS IN TROUBLE

MUCH has been said and written in the last few years about the plight of our medical schools. Very little, comparatively speaking, has been said about nursing schools. We know that much effort has been directed in recent times to acquainting the people with the shortage of nurses and urging enrollment of eligible candidates in our nursing schools. It may come as a surprise to you then that our nursing schools have problems too.

Nursing schools have been too often taken for granted. Most nursing schools are associated with a large hospital, and the average physician

or layman has been prone to think of them as a self-supporting adjunct to the hospital service. On the surface it would seem that this must be true. The services rendered to the hospital by the nurse in training would otherwise have to be rendered by rather highly paid employees if the student nurses were not available. Some of the instruction in the nursing school is furnished by staff members of the hospital at no charge to the school. This, of course, is not the whole picture and the hidden expenses which are never obvious to the general public are deadly.

According to information which has reached us, cost studies at a number of the nursing schools throughout the United States have revealed that the cost of training a student nurse at most of the nursing schools is in the neighborhood of \$1400 per year. This is a net cost figured after the value of the services which the nurse renders to the school or hospital has been taken into consideration. Many hospitals and universities are beginning to wonder whether or not they can afford this luxury. At this rate, a small nursing school which admits only ten new students per year would have a yearly expense of about \$42,000 in operating the nursing school.

This condition has serious portent. Already it has been reported that one of the largest and best known universities of the South has closed its nursing school. Only recently, one of the hospitals in Phoenix decided not to take a freshman class of nurses, probably as the first step toward closing its nursing school. There is no reason to believe that other nursing schools may not follow these examples. This in the face of increasing publicity urging young women of America to adopt nursing as a career.

The matter should concern every physician and every citizen of our country. The solution to the situation should be sought now and applied as soon as available.



TOPICS OF *Current Medical* INTEREST

RX., DX., AND DRS.

By Guillermo Osler, M.D.

WE quoted a 'possibly' sensible scheme by Dr. Ralph Gancher of Oakland, California last year, in which he proposed the use of a pill containing several delayed-action drugs (for week-ends, etc), to the point of 'possible' absurdity. Here is another of his ideas . . . In an article called "Cancer, Schmancer" he proposes that PREMIUM COUPONS be given with each purchase of CIGARETTES, since few people will stop smoking anyway. These would give the smoker a series of prizes ranging from a minifilm of chest, to a resection of the lung (with three glorious weeks in the hospital), to 24 months of psychoanalysis on a Simmons' Beautyrest Mattress for those who develop only a cancerphobia.

A search for methods by which cigarette-smoking could be discouraged has never been very successful, as has been noted above. (The recent cancer scare knocked off sales a few per cent, and caused the stock prices to fall off a bit, but the leading cigarette manufacturer reported a net income gain for the first half of 1954) . . . Now a report has been made on two methods which seem to be effective. Admittedly they would work the 'hard way' . . . Infectious hepatitis and infectious mononucleosis may both result in a distate for cigarettes. The methodology is not known, but both have an effect on the liver.

Other people than gynecologists should be interested in women who develop hydrothorax and ascites, since the G.P. or internist or surgeon may see them first . . . The urgency to recognize this MEIGS' SYNDROME is because it is caused by a curable benign fibrous tumor of the ovary, and because the fluid will lead to death if exploration is avoided or not thought of . . . More other causes of fluid can easily be ruled out.

We have been inclined to raise an eyebrow or two at the value of INTERNATIONAL MEDICAL JUNKETS. They seemed mostly to help the vanity, the travel urge, and the income tax . . . The recent hegira of the American College of Surgeons was not entirely for pleasure, however, and the quality of the topics and speakers was strictly topdrawer . . . Four scientific sessions were held on the 'Queen Elizabeth' en route. Walson-Jones of London voiced the British conservatism towards metals for internal fixation of fractures, but Cave of Boston stressed the economic saving. Ravdin of Philadelphia and Love of London agreed on the value of operative cholangiography for stones in the com-

mon duct. Tollefson of Los Angeles spoke on endometriosis. Oldham of Liverpool was against refeeding intestinal contents aspirated in the treatment of obstruction. Thorlakson of Winnipeg urged early decompression. Waugh of Mayo's discussed cecostomy and colectomy. Graham of St. Louis, Sellors of London, Allen of Boston, Abel of London, Allison of Leeds, Sweet of Boston all urged early operation for cancer, and reported discouraging rates of surgical cures. Rob of London reported transplants of large arteries. Thomas of London and John Jones of Los Angeles told of their progress in resection of pulmonary TB . . . Panels were equally well staffed, and the opinions were apparently 'forthright' . . . "Many facets of French medical life seem stagnant" said Dr. Paul Quaintance, but the medical and research facilities at the University of Paris (built by Marshall Plan funds) excell almost any in the United States.

A meeting in Washington, D.C., of the American Institute of ULTRASONICS in Medicine produced at least two interesting items, 1. J. H. Aldes of the Cedars of Lebanon Hospital in Los Angeles described a huge increase in the duration of improvement when ultrasonic-wave therapy was added to hydrocortone in various types of arthritis and bursitis. 2. There were four hundred (400) members of this highly specialized society in attendance.

In regard to CORTISONE and HYDROCORTISONE, Dr. Edward Boland, also of Los Angeles, says (in a person communication) "There is a greater dissociation between the anti-inflammatory (or anti-allergic) properties of hydrocortisone and its adverse effects" than there is with cortisone. This would make the former of greater value and safety when it is used for such conditions.

The early use of ULTRASONIC ENERGY in physiotherapy was accompanied by warnings of its hazards and limitations. The wider current use almost assures that someone will forget . . . To prevent carelessness all technicians should be shown the results of exposure which occurred in the legs of dogs (by Ardan, Janes, and Herrick of the Mayo Foundation). The wattage was the same as for clinical use, but the sonic head was held stationary . . . Same warning as the cops give — Keep moving!

IN DEFENSE OF PSYCHIATRISTS — People, patients, and physicians may all fail to love psychiatrists. They are indeed in a tough situation,



THE HOSPITAL BENEFIT

Bulletin

Special

Published Bi-Monthly by the Hospital Benefit Association, First Street at Willetta, Phoenix

October, 1954

Question Quiz

Do you know the answers?

Q. What per cent of the claims paid by the Hospital Benefit Association require "claim forms"?

A. Only about 3 per cent. When more detailed information is needed, it is usually to establish the date of onset of illness. While members are eligible for benefits because of accident from the first day of membership, eligible illnesses are those not specifically excluded which commence 30 days after effective date.

Q. Is there any way that the doctor can help speed payment of his bill?

A. Yes. The sooner the doctor returns the filled-in billing form to the Association, the sooner he can be paid. The HBA tries to send a check within 3 to 5 days after the proper bill form is received.

Q. Does the Surgical Plan pay for office calls and home calls for emergency accident treatment?

A. Yes. HBA Surgical schedules provide for treatment of accidental injuries anywhere, providing such treatment is administered within 24 hours after the accident. The HBA does not pay for medical treatment of illnesses.

Q. How about X-rays — do they have to be taken in a hospital?

A. Not necessarily. Under the provisions of the Surgical Plan, an X-ray of a fracture or dislocation may be taken at a doctor's office or an X-ray lab if needed because of an accident and if within 24 hours after the accident.

Q. May members of HBA have the Surgical Plan without having a Hospital Plan?

A. No. The Surgical Plan is available only to members who have enrolled in one of HBA's Hospital Plans.

THANK YOU, DOCTOR, FOR THOSE KIND WORDS

We at the Hospital Benefit Association are extremely gratified by the large number of new members who come into the fold because "My doctor told me you were good reliable people".

More applicants than you may realize tell us this: "I thought your plan was probably best, but I called my doctor to see what he thought of HBA. He told me that you pay as promised and pay quickly, and that his relations with HBA had always been pleasant."

In practically every case that we know of, the physician has had good words to say about the Hospital Benefit Association when a patient has asked for a frank opinion. And that makes us very happy, as it indicates that our simple, speedy payment procedure is meeting with physicians' approval.

Give-Away Department

We still have a couple of choice items that are yours for the asking. Number 1 is a neat plastic desk easel containing a small display card instructing HBA members to present their Membership Cards when they come to your office. A real time-saver.

We also have a supply of the Better Business Bureau booklet, **Facts You Should Know About Accident and Health Insurance.** A good reference when patients ask about health insurance.

For either or both of these items, call the Phoenix Home Office (ALpine 8-4888) or the Tucson Office (2-9421).



"... soon learn the difference between carrots and radishes."

3 to 5 days

It is our practice, whenever possible, to make payment directly to the doctor (and the hospital) within 3 to 5 days after we receive the bill. In cases of operations, payment is made direct to the surgeon upon receipt of a simple short billing form which takes only a few seconds to fill out. In cases of emergency first aid, the doctor's regular bill form usually suffices if it contains the date, the member's name and membership number, the nature of the accident, the treatment and, of course, the charge for the treatment.

Claim Forms

We don't like it, but 3 out of every 100 claims paid require a comparatively short "claim form". Usually this is because the patient did not take advantage of the convenience of his Membership Card and paid the hospital himself; or something may come up which disagrees with information given as about previous health history. Doctors, realizing that we request one of the "claim forms" only when absolutely necessary, have been extremely cooperative, and we appreciate it very much.

We Try!

We try with sincere effort to make our services to our members as convenient as possible... not only for them but for you, also. With your continued generous cooperation, we will be able to continue operating in a manner to merit your support.

Thank you, Doctor!

says Dr. D. Jackson of Stanford . . . The causes of discord include the cost of psychotherapy, the relative youth of the specialty, the often hostile attitude of the referring physician, and (here is real soul-searching) the unhelpful attitude of certain psychiatrists.

About 40 per cent of persons who receive large doses of isoniazid develop NEURITIC symptoms and signs. Paraesthesia and numbness of the fingers or toes, muscle soreness and weakness, patchy hypesthesia, and some loss of vibratory sense may be noted . . . The signs and symptoms usually clear when the drug is D.C.'d., but burning feet, atrophy, etc. may continue for months . . . Biehl and Vilter have noted a high excretion of Vit. B6 when isoniazid is being taken. This, as well as a similar neuritis, occurs when a Vit. B6 antagonist (desoxypyridoxine) is given . . . The logical deduction is to give PYRIDOXINE (Vit. B6) with the isoniazid to prevent neuritis — and they say it works (Proc. Soc. Exper. Biol. and Med.)

The first use of many ANTI-TUBERCULOSIS DRUGS was at or near the Mayo Clinic. Dr. David T. Carr is now the young chief of that part of the medical service, and he stresses at least two points in therapy in an editorial for 'Minnesota Medicine' . . . The minimum duration of chemotherapy should be 8 to 12 months, but in many instances it should be continued for several years. Two of the usual three drugs (SM, PAS, and INH) should be used (and many people think that either SM or INH should be held in reserve over a long pull) . . . The lesions may be labelled 'reversible' and 'irreversible'. Rest and chemotherapy and collapse therapy can be used for the 'reversible' component; excision should be used on the 'irreversible' part.

'Coffee-breaks' were once supposed to be relaxing. Now they are a ritual, and have come to the point of being condemned . . . Dr. L. J. Starry, prof. of surgery at the U. of Oklahoma, says that they are pernicious. They increase the intake of coffee and the use of cigarettes. They can possibly be blamed for the INCREASED INCIDENCE OF PEPTIC ULCERS . . . During the increase, women are worse off than people. The ratio formerly was 1 in 5; now 1 of every 4 ulcers belong to a woman.

"CANKER SORES" are one of the commonest subclinical complaints, and they cause more medical questions (as seen, e.g., in 'Minor Notes and Queries') . . . The allergist favors food as a cause, and particularly chocolate. The stomatologist considers trophic changes, smoking, a difference in electric potential between fillings in the teeth, etc. . . . Now the fashionable cause is a substance which has become a whipping-boy for other reasons—CHLOROPHYLL. It can be present in toothpaste, breath sweeteners, or mouth wash,

and cause the local reactions more often than rarely.

Just suppose, for instance, that there was A LAW REQUIRING A CULTURE TO BE TAKEN from a wound or infection BEFORE an antibiotic could be used. How would the bad effects balance up against the good? How much money would be wasted compared with the value from sensitivity tests, or possibly even the saving of life? . . . The relative value would be hard to predict, but it would often be a trouble and needless expense, tho it would often help a great deal . . . Pratt and Dufrenoy write on "Emergency Use of Antibiotics in the Treatment of Wounds" in the Texas Reports of Biology and Medicine. They believe that PROPHYLACTIC ANTIBIOTICS should be used in severe, deep, extensive, and greatly contaminated wounds. Combined therapy is the method of choice. The causal organism should be identified and tested for sensitivity before treatment of an established infection, but material for culture (and possible future tests) is all that is needed before emergency use of drugs.

When a Detroit report on SANDPAPERING THE SKIN for acne was quoted in this column a couple of years ago it was partly from amazement . . . Imagine the surprise when a notice from the University of California (L.A.) post-graduate medical education service was opened, and it was found that sand-paperying has become "DERMAL ABRASION", and that they offer a SIX-DAY COURSE in theory and practice.

A reprint came to the surface of the many large stacks on Osler's desk, and it seems odd, as seen in the present day. It was entitled "RELATION OF A STREPTOCOCCUS TO EPIDEMIC POLIO-MYELITIS" and the author (as anyone who has been in medicine for 30 or 40 years would know) was Edward C. Rosenow of Rochester, Minn., and Cincinnati . . . A strep was said to be the cause of 'posterior' polio (herpes). A strep was often found in anterior polio patients and contacts. It was found in polio virus cultures. Immunologic tests were suggestive in polio patients. A virus could be obtained from strep cultures. An anti-strep serum was found effective. Etc., etc. . . . This is not said in ridicule, since the polio problem is not yet nailed down. It is mentioned because THE DATE ON THE ARTICLE is as recent as JUNE 1952.

Hundreds of PRACTICAL IDEAS were proposed and discussed at the annual meeting of the AM. HOSPITAL ASS'N. Fifty-seven of them were listed in 'Hospital Management'. Thirteen seem interesting enough to jot down here . . . SUCTION EQUIPMENT at every bedside as well as oxygen outlets) is a convenience and a money-saver. HANDRAILS along the corridors are a help to early ambulation, and more shower-

baths are needed because of the same trend. A **PORTABLE CHAPEL**, costing \$35, may implement a spiritual consideration for patients. **DUMB-WAITERS** should be installed more widely. **'HIGH-LOW' BEDS** are more necessary as the average age of patients rises. Placing the doctor's **MAIL BOXES** near the record librarian's desk may provide a fine trap. The number of **POST-ANAESTHESIA BEDS** varies from 1 to 3 beds per operating room. The **SUPER-FACILITIES** which are available in some of the Kaiser Foundation hospitals shouldn't be mentioned in ordinary hospital circles (a three-way radio; hot and cold running water at the bed; electrically controlled curtains; placement of 8 beds around a service area.) The **WOMEN'S AUXILIARY** of various hospitals have provided or staffed a **DAY NURSERY** for nurses' children, a **PLAYROOM** for children of outpatient mothers, **TRANSPORTATION** for needy clinic patients, an **EVENING INFORMATION DESK**, and a **LIBRARY OF PICTURES** for rotation among the rooms.

HILL-BURTON CONSTRUCTION

The Division of Hospital Facilities of FSA reports that as of August 31, 1954 no new projects had been approved for Hill-Burton grants in Arizona. Status of all Hill-Burton hospital construction in Arizona, is as follows:

COMPLETED AND IN OPERATION: 13 projects at a total cost of \$11,508,837, including federal contribution of \$3,401,750 and supplying 757 additional beds.

UNDER CONSTRUCTION: 2 projects at a total cost of \$525,000, including federal contribution of \$240,000 and designed to supply 127 additional beds.

APPROVED BUT NOT YET UNDER CONSTRUCTION: None.

MARICOPA COUNTY CONFERENCE ON RECENT ADVANCES IN MEDICINE

PHYSIICIANS of Arizona and nearby County Societies in neighboring states are being invited to attend the first annual series of lectures entitled the "Maricopa County Conference on Recent Advances in Medicine" it has been announced by Donald A. Polson, M.D., president of the Maricopa County Medical Society of Phoenix, Arizona.

The initial conference will be held at the Arizona-Biltmore Hotel in Phoenix on November 3 and 4, 1954.

Invitations are being issued through the president of each County Society by Doctor Polson who said "we feel that attendance by physicians from adjacent County Societies in our neighbor states will make the conference of considerable importance in maintaining the caliber of medical standards in this area of the country."

With physicians being invited from New Mexico West Texas, Arizona, San Diego County and Sonora, Mexico it is expected there will be a splendid representation of the Southwest and Pacific areas.

Authorities presenting papers at the meeting will be Paul Starr, M.D., of Los Angeles; George C. Griffith, M.D., of Pasadena; Marcus Krupp, M.D., of Palo Alto and Gordon Meiklejohn, M.D., of Denver.

Doctor Starr is Clinical Professor of Medicine at the University of Southern California. He will speak on "Recent Advances in Endocrine and Metabolic Diseases".

Doctor Griffith is a Professor of Medicine, Coordinator of Cardiovascular Diseases at the University of Southern California. His subject will be "Recent Advances in Heart Diseases".

Doctor Krupp, Director of Laboratory Medicine at the Palo Alto Clinic, will speak on "Recent Advances in Liver and Kidney Function Tests."

Doctor Meiklejohn is Professor of Medicine at the University of Colorado. He will present "Recent Advances in Virus Disease".

The Conference has been approved for formal Post Graduate training. Doctor Robert A. Price, Chairman of the Educational Committee, Arizona Academy of General Practice has announced that members of the Arizona Academy of General Practice will be allowed credit for each hour of attendance.

The registration fee will be \$10 for each participant.

The Arizona-Biltmore, offering every resort facility, is making a special rate for conference guests of \$22.50 per person, American plan. Arrangements have been made for delegates not living in the hotel to attend the luncheons and dinner.

Any inquiries about the Conference should be addressed to James Barger, M.D., Maricopa County Medical Society, 2025 N. Central Ave., Phoenix.

BASIC SCIENCE PROGRAM **MARICOPA COUNTY MEDICAL SOCIETY**

	SUBJECT	DOCTORS	DATE	
I.	Introduction	Richard O. Flynn	Sept. 7	1*
II.	Pulmonary System (W. A. Reed, Chrm)			
	1. Physiology of respiration	W. A. Reed & C. T. Reed	Sept. 14	2*
	2. Anatomy and pathophysiology	George Scharf & R. A. Gutekunst	Sept. 21	3*
III.	Cardiac (Joe Ehrlich, Chairman)			
	1. Anatomy and embryology of the heart (congenital anomalies)	Lorel Stapley	Sept. 28	4*
	2. Physiology of heart and circulation	Morris Deitchman	Oct. 5	5†
	3. Physiology of E. K. G.	Robert Beers	Oct. 12	6†
	4. Pathology (Inflammation and disturbances in circulation)	Lorel Stapley & Hayes Caldwell	Oct. 19	7†
	5. Pharmacology (Cardiac drugs)	Joe Ehrlich	Oct. 26	8†
IV.	Pathophysiology of peripheral vascular diseases	David James	Nov. 2	9*
V.	Kidney (J. Faulkner, Chairman)			
	1. Normal and pathological physiology	J. Faulkner & D. Manley	Nov. 9	10*
VI.	Gastro-intestinal tract (Joe Bank, Chrm.)			
	1. Physiology of digestion			
	a. Stomach and esophagus	Joe Bank & Everett Dean	Nov. 16	11*
	2. Physiology of liver and biliary system	Donald Buffmire & James Berens	Nov. 23	12*
	3. Physiology of digestion			
	a. Small intestine and pancreas	Al Brewer & Boyd Hayward	Nov. 30	13*
VII.	Hematology (James Barger, Chairman)			
	1. Physiology of the erythron (iron metabolism)	Hayes Caldwell	Dec. 7	14†
	2. Physiology of the white blood cells (normal and abnormal)	O. Williams	Dec. 14	15†
	3. Disorders of coagulation	James Barger	Dec. 21	16†
	4. Hypersplenism and hemolytic states	Lee Ehrlich	Jan. 11	17*
	5. Blood groups	James Barger	Jan. 18	18*
VIII.	Anaphylaxis			
	1. Immunology and allergy	Charles Vivian	Jan. 25	19*
IX.	Eye signs in clinical medicine (Panel) (Phil Loveless, Chairman)	Phil Loveless, Harry French David Long, Shaw McDaniel	Feb. 1	20†
X.	Female genital system (Robert Moore, Chairman)			
	1. Physiology of menstruation	Philip Windrow & Byron Butler	Feb. 8	21†
	2. Physiology of pregnancy	Robert Moore & Joe Bonnet	Feb. 15	22†
XI.	Endocrinology (Roger White, Chairman)			
	1. Testes - pituitary	Paul Singer & Roger White	Mar. 1	23*

* after program sequence number indicates that program will be held in the Auditorium of the Nurses' Home, Good Samaritan Hospital, 7:30 P.M.

† after program sequence number indicates that program will be held in the Assembly Room, St. Joseph's Hospital, 7:30 P.M.

SUBJECT	DOCTORS	DATE	
2. Thyroid, adrenal and pituitary	Roger White	Mar. 8	24°
3. Interrelationship of fat, carbohydrate, protein metabolism	Eleanor Waskow	Mar. 15	25°
XII. Water and mineral metabolism (acid-base balance), (Ashton Taylor, Chrm.)	Ashton Taylor, Richard	Mar. 22	26°
	Creasman, M. Wood,	Mar. 29	27°
	Raymond Jennett, (3 lecture periods)	Apr. 5	28°
1. Calcium and phosphorus metabolism (physiology of bone)	DeWitt Englund	Apr. 12	29†
2. Bone repair (functional physiology)	Ray Fife	Apr. 12	29†
XIII. General practitioners advice	Charles Cooke & Melvin Kent	Apr. 19	30†
XIV. Growth and development (Panel) (Howard M. Purcell, Jr., Chairman)	H. Purcell, Jr., D. Manley, R. Creasman, Robert Barfoot, Fred Ewart	Apr. 26	31†
XV. Bacteriology	H. Gilbert Crecelius	May 3	32†
1. Enteric diseases			
2. Systemic mycoses (including Tbc., virus and rickettsial diseases)	G. Scharf & C. Salsbury	May 10	33°
XVI. Basic human behavior (Panel), William McGrath, Chairman)	W. McGrath, O. Bendheim, L. Dagres, R. Duisberg	May 17	34°
XVII. Ear; anatomy and physiology	Jack Brooks, V. A. Dunham	May 24	35°
XVIII. Anatomy and physiology in neurological diseases	John Eisenbeiss & John Green	May 31	36°
XIX. General adaptation syndrome (DeWitt Englund, Chairman)	DeWitt Englund, J. Cook, W. Cleveland, R. White	June 7	37°

PRELIMINARY NOTICE OF POSTGRADUATE MEDICAL SEMINARS

Postgraduate medical seminars are being arranged for your advantage through the Professional Board of your Arizona Medical Association with the financial support of the Arizona State Department of Health. In order that you may plan NOW to attend, the following preliminary schedule is presented for your consideration:

Note: Those desiring overnight hotel accommodations at either EL TOVAR or BRIGHT ANGEL LODGE please contact immediately Leo Schnur, M.D., Grand Canyon Hospital, Grand Canyon.

Oct. 23-24, (2 days) GRAND CANYON:

Oct. 26-27 (1½ days) YUMA

Oct. 28 (1 day) COOLIDGE or FLORENCE

Oct. 29 (1 day) BISBEE or DOUGLAS

Oct. 31 - Nov. 1 (1½ days) SAFFORD

ORATORS:

Harold Brown, M.D. Internist and William Morte, M.D. Surgeon, Univ. of Utah School of Medicine

To be announced, Anesthesiologist, Dermatologist or Pediatrician, Ariz. Med. Ass'n.

Subjects: To be announced later.

Every effort is being made to make these seminars outstanding. Your participation is invited and presence urged. MARK YOUR CALENDAR NOW.

THE ARIZONA MEDICAL ASSOCIATION, INC.

Hugh C. Thompson, M. D.
Chairman, Professional Board

AMERICAN OCCUPATIONAL THERAPY ASSOCIATION

The 37th Annual Conference of the American Occupational Therapy Association will be held at the Shoreham Hotel, Washington, D. C., October 16-22, 1954. The meetings will be as follows:

October 16-17—Preliminary Meetings

October 18-19—Institute — Interpersonal Relations

October 20-21-22—General Conference —

Theme: "Capitalize Your Assets"

Interesting TOPICS

RECOMMENDED READING IN CURRENT MEDICAL JOURNALS

MEDICAL EXPERTS. Henry Weihofen, Professor of Law at the New Mexico College of Law, writes in a very entertaining and instructive manner on "How Can We Eliminate the Battles of Medical Experts?" in the *Nebraska State Med. Journ.* of June, 1954. He discusses in a very understanding way the reasons for differing viewpoints of doctors and lawyers, and the causes of disagreements among medical experts. He discusses the remedies which have been successful in eliminating the biased testimony. He considers the hypothetical question to be an outmoded, useless and dangerous phase of medical testimony and should be barred from court procedure.

SMOKING AND THE DOCTOR. J. W. Wisher, M.D., Evansville, Ind. *Medical Times*, June, 1954. Brief and trenchant article, with the following conclusions, in part:

There is general agreement that the excessive use of tobacco may cause, in susceptible cases, cancer of the lip, tongue, buccal mucous membranes and bronchi. There is evidence that cancer of the nasopharynx, larynx, esophagus, stomach and colon may also be caused by prolonged excessive use of tobacco. Cardiologists and internists agree that the excessive use of tobacco can cause angina pectoris, coronary thrombosis, thrombo-angiitis obliterans, and peripheral endarteritis.

DOCTORS AND DOPE. J. DeWitt Fox, M. D., in *Medical Annals of the District of Columbia*, June, 1954. It seems incredible that any large number of doctors, with their supposed knowledge of the effects of narcotics, should become addicts. But this author says the percentage of addicts among doctors is surprisingly large and increasing. He deplores the fact that the dangers of self administration of demerol, methadone or morphine is not generally appreciated and not taught to medical students, interns or nurses, as it should be. No doctor should ever give himself a dose of such a narcotic. "The man who treats himself has a fool for a doctor."

THE MANAGEMENT OF ESSENTIAL HYPERTENSION. Garfield G. Duncan, M.D., and Robert J. Gill, M.D., Philadelphia, Pa. *The New Eng. Journ. of Med.*, July 16, 1953.

"The prevalence of essential hypertension, its crippling potentialities and its threat to life make it one of the greatest of clinical problems." With this introductory these authors discuss the outlook and clinical evaluation, and then "correlate the respective grades of hypertensive disease

with the therapies that promise optimum results."

Their outline of therapy according to the degree of the hypertensive process cannot be condensed satisfactorily into an abstract and must be read in the original article by those interested. Their six degrees of hypertensive disease, with the medication and/or surgical procedures indicated in each, may be mentioned: (1) Mild degrees with intermittent, or sustained, elevation of the blood pressure. (2) Moderate to severe degrees with a sustained hypertension, e.g., 170-230/105-120 pressures, when the measures outlined for mild degrees have failed. (3) Severe hypertensive disease with unfavorable progression; e.g., pressures of 220-280/120-140, after therapy has proved inadequate; sympathectomy in about 6 per cent of hypertensive patients, if patient can meet certain definite qualifications. (4) Diastolic pressures above 100 after sympathectomy. (5) Sustained severe hypertension (diastolic above 130); adrenalectomy enters the picture here. (6) Malignant hypertension with azotemia.

The qualifications for sympathectomy are interesting. Patients with grade 3 hypertensive disease must meet three criteria; should not be over 55 years of age and preferably under 50; if cardiac enlargement is present it must not exceed normal dimensions by 50 per cent; if carotid normal dimensions by 50%, determined by actual measurements by x-ray aid; must not have an increase above 24 mg. per 100 cc. in the blood urea nitrogen. The drug therapy discussed include the veratrum alkaloids, apresoline, hexamethonium, dibenzylamine, rauwolfia serpentina.

THE MANAGEMENT OF THE ALLERGIC CHILD. By Leo H. Crip, Section on Allergy, School of Medicine, University of Pittsburgh and the Presbyterian Hospital, Pittsburgh, Pa.

"As a rule, in spite of wishful thinking and endless and harmful temporizing, if untreated, the allergic child continues to suffer. Extension of the allergic symptoms over long periods of time affects the child's growth, health, and personality. He loses weight, becomes irritable, fretful, and sleepless. He misses school, cannot play with other children, and becomes generally incapacitated. Because so much can be accomplished by early treatment and because the institution of such therapy is within the reach of every practitioner, it becomes ever more important that every physician acquaint himself with and practice the procedures which are applicable in the management of the allergic child."

Closing paragraph in the article. Borrow the journal and read the whole article. *Penna. Medical Journal*, June, 1953.

ARIZONA *Pharmaceutical* PAGE

KEEPING POSTED

By Joseph A. Zapotocky, Ph.D.

Pharmacy College, University of Arizona

AT the rapid rate that new drugs are discovered and brought on the market, both the pharmacist and physician have a herculean task keeping pace with them. On occasion, it may seem hopeless; the complexity of the organic formulas, the variety of terminology, the duplication of products with numerous trade names, all make the work of keeping posted more difficult. And there is no indication that simplification will occur soon. Although the problem is recognized, no solution, that would be satisfactory to all concerned, seems forthcoming.

Every physician has two allies — two valuable sources of information on new drugs other than his own medical journals — the pharmacist and the medical representative. The pharmacy nearly will most likely have a literature file on new drugs and may also have a section in the prescription room specifically devoted to new drugs and literature pertaining to their use. The pharmacist will be happy to have any physician drop in periodically to make use of them. Some pharmacists mail a monthly information bulletin to their neighborhood physicians. Other pharmacists detail the physicians in their neighborhood and bring them the latest information about new drugs, new dosage forms, point out duplications of drugs, and inform them of new pharmaceutical techniques which may be incorporated into their prescriptions. During these visits, problems of mutual concern may be discussed and may result in united action. Such meeting of physician and pharmacist leads to a better understanding between them and results in better ethical practices on the part of both. This cooperative relationship can improve the medical habits of the public and minimize some of the poor public relations we now enjoy.

The second source of information on new therapeutic agents is the manufacturer's medical representative, sometimes referred to as the "detail man." In a majority of cases he is a pharmacist or an individual with training in one of the allied sciences. Each man is trained by the manufacturer to do a certain job — to bring the physician information on new products. This may include their chemical classifications, indications for their use, action, dosage, and forms in which they are or may be available. Comparison with products already on the market may be made. If any physician has a specific interest in the detailed product, the representative is usually prepared to obtain further literature sources for him or to provide him with reprints of scientific literature. In the few minutes the physician allots him periodically, the detail man outlines the pertinent facts about one or two products which the physician would otherwise be forced to obtain by digesting material in medical journals, attending seminars, or returning to medical school for refresher courses. The detail man makes no pretense of thoroughly understanding the theories or mechanism of the action of drugs although he may quote some at times. He makes no attempt to teach the physician pharmacology or therapeutics but merely presents those facts which the manufacturer feels is important to an understanding of the action and use of its product. This service costs nothing, yet it saves the physician time necessarily expended in reading infinite medical literature about these products.

The pharmacist and medical representative can make the physician's job of keeping posted on new drugs a lot easier if given half a chance.

Organization PAGE

CIVICS

Norman A. Ross, M.D., Phoenix, Arizona

THE NATIONAL FOUNDATION FOR INFANTILE PARALYSIS, INC., 120 Broadway, New York 5, New York, State Office 39 West Adams, Phoenix, Arizona.

The local county polio chapters stand ready and willing to help in sending any interested professional person to the following institute:

"Orthopaedic Hospital and Rancho Los Amigos Respiratory Center, Los Angeles, California announce a course in POLIO-MYELITIS, October 25-29, 1954.

Those interested may contact this office or their local county polio chapter.

* * *

ARIZONA TUBERCULOSIS AND HEALTH ASSOCIATION, 111 East Willetta, Phoenix, Arizona.

"THE HEALTH OF THE FUTURE DEPENDS UPON THE RESEARCH AND EDUCATION OF TODAY" (Bacon).

The Arizona Tuberculosis and Health Association and the Arizona Trudeau Society wish to call to the attention of physicians in Arizona the opportunity for graduate study in the field of tuberculosis and related pulmonary disease under the fellowships offered by the American Trudeau Society.

RESIDENT FELLOWSHIPS

The American Trudeau Society, Medical Section of the National Tuberculosis Association provides a limited number of Resident Fellowships to promote the training of clinicians, medical teachers and administrators in the field of tuberculosis and related pulmonary diseases. Awards are open to citizens of the United States for work within this country. Candidates should hold the degree of Doctor of Medicine and preference will be given to those not more than thirty years of age.

Awards are made for graduate study in internal medicine, with emphasis on diseases of the chest, in an approved hospital. The American Board of Internal Medicine will accept one such year as part of the prerequisite training for certification in internal medicine and in pulmonary diseases.

All awards are determined by individual circumstances and are paid directly to the Fellow on a monthly basis.

Fellowships are granted for one year. Not more than two renewals will be considered. Fellowship applications must be received by February 1, 1955. Appointments may begin on any date at the convenience of the applicant, who may elect the hospital in which he wishes to study and the staff member who will supervise his work.

TRUDEAU FELLOWSHIPS

A few fellowships at a higher level of training and award are offered to specially qualified candidates who have been assured of a continued teaching appointment upon completion of training. Trudeau Fellowships are awarded for one year but may be renewed up to a total period of four years.

Further particulars concerning Resident and Trudeau Fellowships may be obtained on request. Address communications direct to THE DIRECTOR OF MEDICAL EDUCATION, AMERICAN TRUDEAU SOCIETY, %The Henry Phipps Institute, Seventh and Lombard Streets, Philadelphia 47, Pennsylvania.

* * *

KNOW YOUR SOCIAL SERVICE AGENCIES, VOLUNTEER AND GOVERNMENT:

Seven out of every ten families in the average American urban community receive an average of two units of such service each year. Ten (10) weeks, (20 per cent), of community payroll is assigned to social or welfare activity. Such programs aim to answer economic need, health, educational and behavior problems, and to provide for the use of leisure time.

The above figures were presented several years ago, and these do not include persons admitted to hospitals or the beneficiaries of voluntary insurance programs. Neither do they include those using public playgrounds.

The same source of information advises that as of that date there were seventy (70) national agencies, and more than five hundred (500) state and government organizations whose func-

tions were within or closely allied to the field of social work.

Voluntary social agencies and organizations comprise a total of four hundred forty two (442) at a national or international level, and five hundred ninety two (592) of lesser areas of service.

We counted the agencies in the index of the directory of the Health and Welfare Service of Phoenix as compiled by the Phoenix Community Council, (another local agency). Here are listed ninety four (94) government and voluntary agencies.

We offer that these many volunteer agencies and the acceptance of the voluntary insurance programs to date offer increasing possibilities and proves that the individual American wants to do for himself and others.

We, in this column, hope to familiarize you with the programs of the voluntary agencies and to stimulate and continue your interest and participation.

An international figure proposes that it is generally accepted that it is the duty of the public authority (government) in making laws and in disposing of public funds, to relieve the needy.

We offer, though we may be accused of being nationalistic, that in the face of this pronouncement and in the face of the jobs and appointees to be gained by public officials, volunteer agencies must be recognized and their activities continued and expanded. How else can we (in the public interest) avoid the need for government intervention?

Seven out of ten families have the social service habit.

* * *

ARIZONA SOCIETY FOR CRIPPLED CHILDREN AND ADULTS, INC., 207 Arizona Title Building, Phoenix, Arizona.

Two rehabilitation scholarships for doctors are now available to Arizona physicians.

The scholarships will range from \$300 to \$750 depending upon costs involved in the course selected. It was pointed out that there are no area restrictions on applications.

Suggested possibilities for rehabilitation training are: Dr. Meyer Perlstein, Cook County Graduate School of Medicine, Chicago; Dr. George Deaver, Institute for Physical Medicine and Rehabilitation, New York University, College of Medicine; Dr. Henry H. Kessler, Medical Di-

rector, The Kessler Institute for Rehabilitation, Pleasant Valley Way, West Orange, New Jersey; and Dr. Winford Phelps, Children's Rehabilitation Institute, Cockeysville, Maryland.

E. Leroy Larson, Ph. D. is the new director of the Samuel Gompers Memorial Clinic in Phoenix. Dr. Larson received his doctorate in special education and psychology at the University of Iowa. Until accepting the position here, he served as principal of the Iowa Hospital School which is affiliated with the University of Iowa Medical College.

Four regional crippled children's clinics remain on the thirteen-clinic schedule of the Society for the remainder of the calendar year. They are Nogales, October 24; Coolidge, October 31; Flagstaff, November 7; and Yuma, November 14. Local doctors may refer any patients, children or adults, to these clinics. The visiting staffs consist of orthopedic, pediatric and psychology specialists in addition to registered physical and speech therapists. This year the clinics are being held through the combined efforts of the Society and the Crippled Children's Division of the Arizona State Department of Public Welfare.

SIXTH WESTERN INSTITUTE ON EPILEPSY

This Institute sponsored by the Hogg Foundation, The University of Texas - Medical Branch, and Baylor Medical College will be held October 22 and 23, 1954, at the Jack Tar Hotel in Galveston, Texas. The purpose of the Institute is to bring together professional and lay workers in the field of epilepsy as a means of coordinating their efforts toward the eventual betterment of the epileptic. This year's program will be devoted primarily to the psychosomatic aspects of epilepsy. The program will be provided by a number of physicians and medical workers experienced in the field of epilepsy, and the special guest speaker will be the President of the American Academy of Neurology, Howard D. Fabing, M.D., of Cincinnati, Ohio.

These Institutes are held annually in the major cities of the Pacific Coast and Rocky Mountain area, and the 1955 meeting will be held in Phoenix, Arizona. For further information, contact John L. Otto, M.D., at John Sealy Hospital, Galveston, Texas, or John Raymond Green, M.D., Park Central Medical Building, Phoenix, Arizona.

PUBLIC RELATIONS INSTITUTE

THE AMA's Public Relations Institute in Chicago September 1 and 2 attracted almost 300 state and county medical society representatives. Attending the "crackerbarrel Institute" from Arizona was Mr. Fred Mitten, Executive Secretary, Maricopa County Medical Society.

The Institute, planned primarily for lay executive and PR personnel, M.D. chairman of PR committees, and Auxiliary PR committee women, was the most successful ever held. The two-day meeting featured experts in medical television production, direct mail promotion, AMA services, medical fees, the role of medical assistants, medical motion pictures, and inter-organizational cooperation.

Another meeting, keyed to the public relations needs of individual physicians, will be the AMA's Seventh National Medical Public Relations Conference in Miami at the McAllister hotel, Sunday, November 28 — the day preceding the opening of the Clinical Session. All physicians are invited to participate and to learn how their colleagues have improved medical public relations in their home communities.

MEETING INTER-MOUNTAIN PSYCHIATRIC ASSOCIATION

The Inter-Mountain Psychiatric Association will hold their annual meeting at the Westward Ho Hotel, Phoenix, on Saturday November 6th and Sunday November 7th, 1954. There will be two guest speakers.

Dr. Sandor Rado, from New York City, will present his topic, "Patterns of Depression" on Saturday, November 6 at 2:30 P.M. On Sunday November 7th at 11:00 A.M. Dr. James H. Wall, Medical Director of the New York Hospital will speak on "Cause and Treatment of Psychiatric Patients with Severe Disturbances of Appetite." There will be a Presidential Address by Doctor Otto L. Bendheim, of Phoenix. The Profession is cordially invited. A cocktail hour and dinner will be held Saturday November 6th.



"HEART DISEASE COURSE"

THE Third Annual Western Cardiac Conference, sponsored by the Colorado Heart Association, Colorado State Department of Public Health, Fitzsimmons Army Hospital, Denver Veterans Administration Hospital and the University of Colorado School of Medicine, will be held in Denver, November 8-13, 1954, and is expected to attract about 400 physicians.

This combined conference on "Clinical Electrocardiography and Recent Advances in Cardiovascular Diseases" will be an outstanding medical event for physicians in Western United States. The clinical sessions have been arranged to emphasize every important advancement in diagnosis and management in the field of cardiovascular diseases.

Seven distinguished authorities in cardiology and competent Colorado teachers have been selected to make this an unusually practical review. The following leading specialists will serve as the guest faculty: M. M. Best, M.D., Louisville, Kentucky; William H. Bunn, M.D., Youngstown, Ohio; George C. Griffith, M.D., Pasadena, California; Gordon Myers, M.D., Detroit, Michigan; Myron Prinzmetal, M.D., Beverly Hills, California; Henry Schroeder, M.D., St. Louis, Missouri, and Paul Dudley White, M.D., Boston, Massachusetts.

The three-day Clinical Electrocardiography course, November 8, 9 and 10, 1954 conducted by Colonel Edwin M. Goyette, MC, is being given this year at the Veterans Administration Hospital Auditorium for the convenience of Denver physicians. This comprehensive and practical review is not surpassed in any postgraduate course in this country. Dr. Gordon B. Myers, Professor of Medicine, Wayne University, Detroit, is a superb teacher and will lecture on "Differential Diagnosis of Myocardial Infarction."

The conference on November 11, 12 and 13 will be held at the Cosmopolitan Hotel where lectures, panel discussions and a clinical-pathological conference and scientific exhibits have been arranged.

Information regarding the conference may be obtained from the Colorado Heart Association, 901 East 17th Avenue, telephone — AComa 2-7888.

Woman's AUXILIARY

MENTAL HEALTH

MENTAL illnesses, after many years of being pushed to the back of the closet of human ailments, have at last been brought out for a long overdue airing. True, they are not discussed as nonchalantly as a surgical operation or a virus infection, but the wall of fear and ignorance is gradually being broken down.

It was not many years ago that tuberculosis, cancer, and Hansen's disease were spoken of in hushed voices. Humans, being just that, have always been afraid of the unknown. However, as soon as misconceptions were dispelled, and knowledge replaced ignorance, help and understanding followed.

Making available the present knowledge on mental illness has been a long, slow process. Initiated by the fortunate few who recovered and were released from mental institutions, interest was kindled. Horror at existing conditions for the care of such patients brought on improvements in some instances. More often, though, it was easier to ignore the problem than to do something constructive about it. However, since the turn of the century, as tiny drops of water wear away stone, little by little the public conscience was aroused and many began to flirt with the problem.

Persons with a member of their family afflicted wanted the unembellished facts. Doctors, lawyers, clergymen, and others whose work brought them into close interpersonal relations began to see the importance of mental health and the necessity of treating the mentally ill. World War II brought out amazing statistics and in bringing to light the incidence of mental disease, a certain amount of fear was created. People began to wonder if insanity and mental breakdown were on the increase, simply because they were hearing more about it. It is reported that there is no evidence to substantiate this, save in the older age group. Here, because the life span has been lengthened remarkably, the degenerative mental diseases of old age are more frequent.

We are now being met on all sides by constant reminders that a major problem exists. The author of the psychological novel has capitalized on this interest and the jokes or cartoons

involving the psychiatrist's couch are hard to avoid these days. Facetiously or otherwise, we have been made aware of a situation that can no longer be ignored.

Being made aware and informed is our responsibility. It is important to us not only as taxpayers, but as humanitarians to reduce the toll of mental illness and to promote mental health. We must place ourselves in a position where by we can intelligently evaluate the situation, neither exaggerating nor minimizing it. The very possibility that one in twelve may be stricken with mental illness in his lifetime, is fearful indeed. However, earlier diagnosis, a change from mere custodial care to active treatment, and means of prevention lend a large degree of hope to the picture.

Our greatest hope, of course, lies in research. As knowledge is gained and put into practice, progress is made. To date, despite the fact that a good many of the answers are unknown, many improvements have been evinced. An increasing number of former mental patients have become rehabilitated into useful members of society. Specialists in the field are increasing, not only in the ranks of doctors, but psychiatric social workers, nurses, and clinical psychologists. Mental Health organizations have made their services available to thousands, with a good part of this service educational. Child Guidance Clinics have sprung up and it is here that recognition of early tendencies may prove of real value in the prevention of mental illness in years to come.

As a respected leader in your community, knowledge of this medical problem is a must. Keep informed. Keeping pace with the mental health movement is being made easier by the steady flow of information carried in the press. As sympathetic understanding attained, we must keep an open mind to enable us to accept new concepts. Putting into practice in our homes and with our contacts, the knowledge of harmonious human behavior is most practical. The well ordered life of a truly happy person affects all who come in contact with it and benefits both the dispenser and the recipient. Show by your interest and example that mental health can be achieved.

Mrs. John K. Bennett Mental Health Chairman

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For additional information and official application contact

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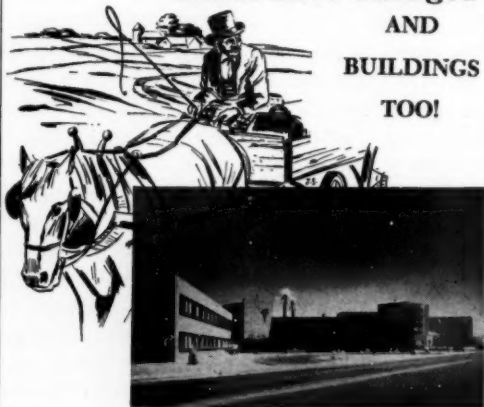
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